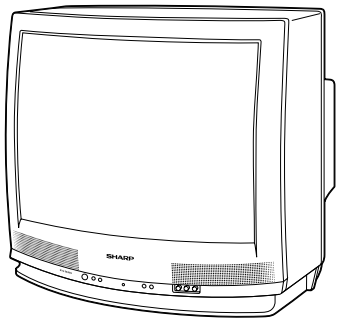
# SHARP SERVICE MANUAL

S21O627R-S50/



## COLOR TELEVISION

***Chassis No. SN-010***

## MODEL 27R-S50

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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## ELECTRICAL SPECIFICATIONS

POWER INPUT ..... 120 V AC 60 Hz
POWER RATING ..... 105 W
PICTURE SIZE ..... 2,187cm$^2$ (339sq inch)
CONVERGENCE ..... Magnetic
SWEEP DEFLECTION ..... Magnetic
FOCUS ..... Hi-Bi-Potential Electrostatic
INTERMEDIATE FREQUENCIES
  Picture IF Carrier Frequency ..... 45.75 MHz
  Sound IF Carrier Frequency ..... 41.25 MHz
  Color Sub-Carrier Frequency ..... 42.17 MHz (Nominal)
AUDIO POWER
  OUTPUT RATING ..... 1.5W + 1.5W (at 10% distortion and Dual CH Operate)
SPEAKER
  SIZE ..... 8 cm (Round)
  VOICE COIL IMPEDANCE ..... 32 ohm at 400 Hz
ANTENNA INPUT IMPEDANCE
  VHF/UHF ..... 75 ohm Unbalanced
TUNING RANGES
  VHF-Channels ..... 2 thru 13
  UHF-Channels ..... 14 thru 69
  CATV Channels ..... 1 thru 125
  (EIA, Channel Plan U.S.A.)

***Specifications are subject to change without prior notice.***


**SHARP CORPORATION**

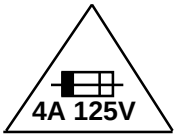
This document has been published to be used for after sales service only.
The contents are subject to change without notice.

# IMPORTANT SERVICE SAFETY PRECAUTION

**■ Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and the servicing guidelines which follow:**

## WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the chassis is operating.
4. The chassis in this receiver has two ground systems which are separated by insulating material. The non-isolated (hot) ground system is for the B+ voltage regulator circuit and the horizontal output circuit. The isolated ground system is for the low B+ DC voltages and the secondary circuit of the high voltage transformer.
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.




**CAUTION**: FOR CONTINUED PROTECTION AGAINST A RISK OF FIRE, REPLACE ONLY WITH SAME TYPE 4A-125V FUSE.

## SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

**When servicing the high voltage system, remove the static charge by connecting a 10k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC line cord should be disconnected from AC outlet.)**

1. Picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

## X-RADIATION AND HIGH VOLTAGE LIMITS

1. Be sure all service personnel are aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation, if the high voltage is as specified in the "High Voltage Check" instructions.
   It is only when high voltage is excessive that X-radiation is capable of penetrating the shell of the picture tube including the lead in the glass material. The important precaution is to keep the high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter.
   The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value –no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and;also, under certain conditions, may produce radiation in exceeding of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly.
5. Do not use a picture tube other than that specified or make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessive high voltage, avoid being unnecessarily close to the receiver.
   Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

# IMPORTANT SERVICE SAFETY PRECAUTION

**(Continued)**

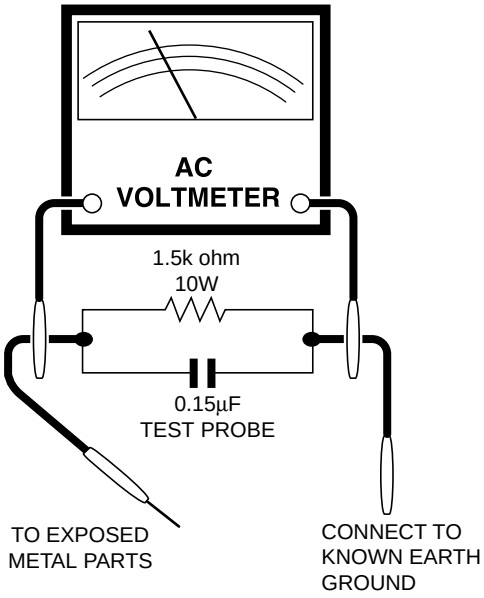
## BEFORE RETURNING THE RECEIVER

## (Fire & Shock Hazard)

**Before returning the receiver to the user, perform the following safety checks.**

1. Inspect all lead dress to make certain that leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators and etc.
3. To be sure that no shock hazard exists, check for leakage current in the following manner.

- Plug the AC cord directly into a 120 volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5k ohm, 10 watt resistor paralleled by a 0.15µF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as electrical conduit or electrical ground connected to earth ground.
- Use an AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Connect the resistor connection to all exposed metal parts having a return to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon and etc.) and measure the AC voltage drop across the resistor.
  AII checks must be repeated with the AC line cord plug connection reversed. (If necessary, a non-polarized adapter plug must be used only for the purpose of completing these check.)
  Any current measured must not exceed 0.5 milliamp. Any measurements not within the limits outlined above indicate of a potential shock hazard and corrective action must be taken before returning the instrument to the customer.



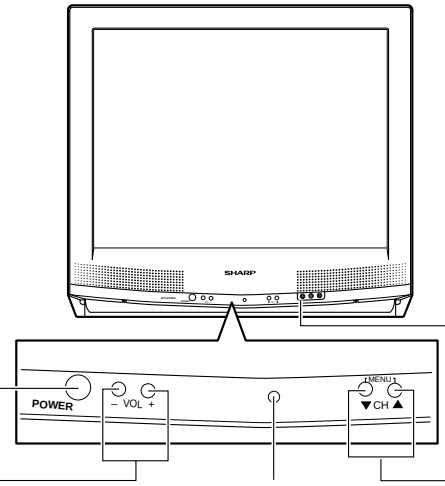

## SAFETY NOTICE

Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams.

For continued protection, replacement parts must be identical to those used in the original circuit. The use of substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

# LOCATION OF USER'S CONTROL

## Front Panel




**VIDEO/AUDIO IN TERMINALS**

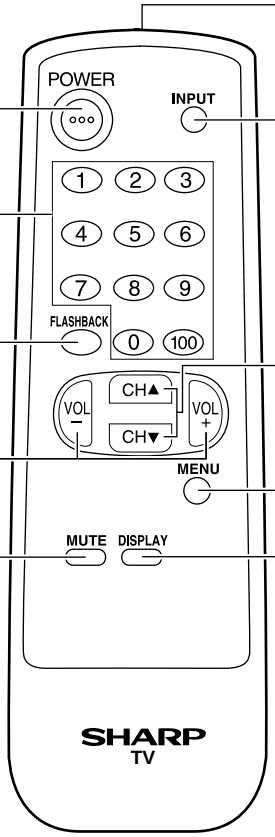
**POWER**
Press → On.
Press again → Off.

**VOLUME UP/DOWN**
(+) Increases sound.
(–) Decreases sound.

SENSOR AREA FOR REMOTE CONTROL

**CHANNEL UP/DOWN**
(▲) Selects next higher channel.
(▼) Selects next lower channel.
• Press both at same time to access MAIN MENU screen.

## Basic Remote Control Functions




Infrared Transmitter Window

**POWER**
Press → On.
Press again → Off.

**REMOTE KEYPAD**
Accesses any channel from keypad.

**FLASHBACK**
Returns to previous channel.

**VOLUME UP/DOWN**
(+) Increases sound.
(–) Decreases sound.
• In menu mode, changes or selects the TV adjustments.

**MUTE**
Press → Mutes sound.
Press again → Restores sound.
• CLOSED CAPTION appears when sound is muted.

**INPUT**
Press → Switch to external video input mode.
Press again → Switch to TV mode.

**CHANNEL UP/DOWN**
(▲) Selects next higher channel.
(▼) Selects next lower channel.
• Moves the " ⬍ " mark of the MENU screen.

**MENU**
Press → Accesses MAIN MENU.
Press again → Exits MAIN MENU.

**DISPLAY**
Press → Displays receiving channel for four seconds.
Press again → Removes display.
• Temporarily displays receiving channel when in Closed Caption mode.

# INSTALLATION AND SERVICE INSTRUCTIONS

**Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdrivers or TV alignment tools.**
**(2) Before performing adjustments, the TV set must be on at least 15 minutes.**

## CIRCUIT PROTECTION

**The receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.**

## X-RADIATION PROTECTOR CIRCUIT TEST

**After service has been performed on the horizontal deflection system, high voltage system, B+ system, test the X-Radiation protection circuit to ascertain proper operation as follows:**

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Receive a good local channel.
4. Connect a digital voltmeter to TP653 and make sure that the voltmeter reads 21.9 ±1.4V.
5. Apply external 27.9V DC at TP653 by using an external DC supply, TV must be shut off.
6. To reset the protector, unplug the AC cord and make a short circuit between TP651 and TP652. Now make sure that normal picture appears on the screen.
7. If the operation of the horizontal oscillator does not stop in step 5, the circuit must be repaired before the set is returned to the customer.

## HIGH VOLTAGE CHECK

**High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:**

1. Connect an accurate high voltage meter between ground and anode of picture tube.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with a strong air signal or a properly tuned in test signal.
3. Enter the service mode and select the service adjustment "S03" and Bus data "01" (Y-mute on).
4. The voltage should be approximately, 30.5kV (at zero beam).
   If a correct reading cannot be obtained, check circuitry for malfunctioning components. After the voltage test, make Y-mute off to the normal mode.

**For adjustments of this model, the bus data is converted to various analog signals by the D/A converter circuit.**

**Note: There are still a few analog adjustments in this series such as focus and master screen voltage. Follow the steps below whenever the service adjusment is required.**

**To enter the service mode and exit service mode.**

While pressing the Vol-up and Ch-up buttons at the sametime, plug the AC cord into a wall socket.
Now, the TV set is switched on and enters the service mode.
To exit the service mode, turn the television off by pressing the power button.

## 1. Service mode.

Before putting unit into the service mode, check that customer adjustments are in the normal mode. Use the reset function in the video adjustment menu to ensure customer control are in their proper (reset) position.

## 2. Service number selection.

In the service mode, you will see the window screen as window ①. There are 4 adjustment categories ②DEF, ③SIGNAL, ④FEATURE, ⑤FIX VALUE as show in **Figure A**.

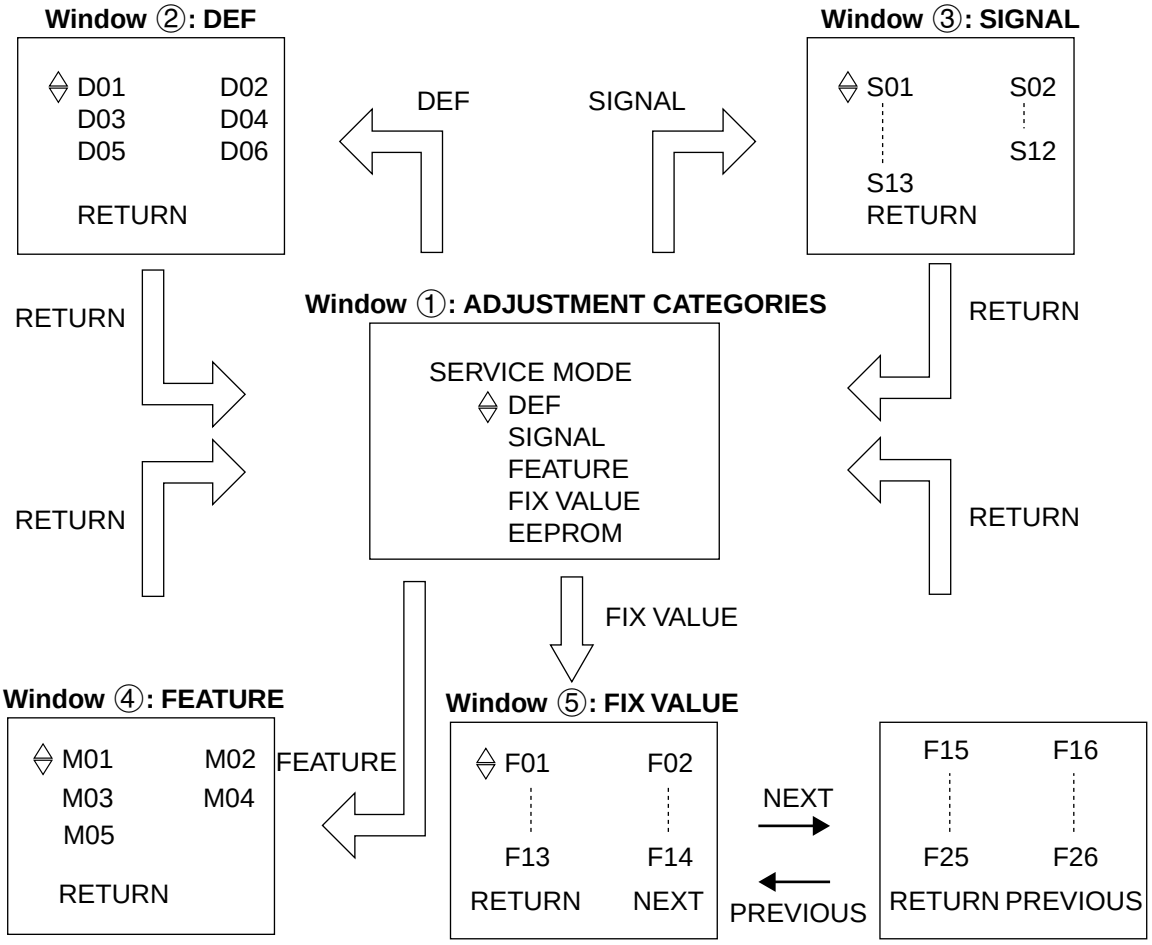



**Figure A: ADJUSTMENT CATEGORIES**

Press CH UP/DOWN button for selection and enter by VOL UP or VOL DOWN.
Press CH UP/DOWN button to select the adjustment item and VOL UP/DOWN to adjust the data number for each categories.
**(OSD disturbance can be erased by R/C display key)**
**(Note: EEPROM - factory used only)**

Below are the adjustments ranges and initial values for FIX VALUE category.

## FIX VALUE

| SERVICE POSITION | ADJUST ITEM | DATA | | |
|---|---|---|---|---|
| | | RANGE | INITIAL VALUE | (Hex) |
| F01 | OPTION 1 | 00-FF | B0 | B0 |
| F02 | OPTION 2 | 00-FF | 04 | 05 |
| F03 | E-SAVE | 00-3F | 23 | 2A |
| F04 | TUNER SETUP | 00, 01 | 00 | 00 |
| F05 | R-TONE RD | 00-7F | 19 | 03 |
| F06 | R-TONE BD | 00-7F | 00 | 7C |
| F07 | B-TONE RD | 00-7F | 00 | 00 |
| F08 | B-TONE BD | 00-7F | 12 | 04 |
| F09 | FM LEVEL | 00-1F | 0C | 16 |
| F10 | AFC GAIN | 00, 01 | 00 | 00 |
| F11 | G DRIVE | 00, 0F | 00 | 0F |
| F12 | FBT BLK SW | 00, 01 | 01 | 01 |
| F13 | V COMP | 00-07 | 07 | 07 |
| F14 | OSD CONT | 00-03 | 02 | 01 |
| F15 | SHARPNESS | 00-3F | 19 | *1 |
| F16 | FLT SYS | 00-07 | 00 | 01 |
| F17 | KILLER OP | 00-07 | 04 | 02 |
| F18 | PRE SHOOT | 00-03 | 03 | 00 |
| F19 | CORING | 00-03 | 04 | 04 |
| F20 | DC REST | 00-03 | 02 | 02 |
| F21 | BS START | 00-03 | 01 | 01 |
| F22 | BS GAIN | 00-03 | 01 | 01 |
| F23 | ABL START | 00-07 | 00 | 00 |
| F24 | R/B ANGLE | 00-0F | 08 | 08 |
| F25 | H BLK R | 00-0F | 04 | 03 |
| F26 | H BLK L | 00-0F | 04 | 00 |

*1: type of tuner

| TUNER TYPE | (Hex) |
|---|---|
| VTUVTST5UF770 | 13 |
| VTUENV56D82-1 | 18 |
| VTUENV56DA1G3 | 18 |
| VTUVTST5UF670 | 13 |
| VTUVTST5UF740 | 13 |

**Table - A**

Below are the ranges and initial values for each adjustment and in each categories.

## DEF

| SERVICE POSITION | ADJUST ITEM | DATA | | ADJUSTMENT CONTENTS |
|---|---|---|---|---|
| | | RANGE | INITIAL VALUE | |
| D01 | H-PHASE | 00-1F | 0C | |
| D02 | V-SIZE | 00-7F | 40 | |
| D03 | V-POSITION | 00-3F | 20 | |
| D04 | CC-POSITION | 00-FF | 1A | |
| D05 | V-LINEARITY | 00-1F | 10 | Must be "13" |
| D06 | V-S-CORRECTION | 00-1F | 10 | Must be "14" |

**Table - B**

## SIGNAL

| SERVICE POSITION | ADJUST ITEM | DATA | | ADJUSTMENT CONTENTS |
|---|---|---|---|---|
| | | RANGE | INITIAL VALUE | |
| S01 | RF AGC | 00-3F | 14 | |
| S02 | VIDEO LEVEL | 00-07 | 03 | |
| S03 | Y-MUTE | 00-03 | 00 | "01": Y-MUTE, "02": V-STOP & Y-MUTE<br>"03": Activate color killer circuit. |
| S04 | SUB BIAS | 00-FF | 40 | Must be "30" |
| S05 | R-BIAS | 00-FF | 00 | |
| S06 | G-BIAS | 00-FF | 00 | |
| S07 | B-BIAS | 00-7F | 00 | |
| S08 | R-DRIVE | 00-7F | 40 | |
| S09 | B-DRIVE | 00-7F | 40 | |
| S10 | CONTRAST | 00-7F | 5A | |
| S11 | TINT | 00-7F | 40 | |
| S12 | COLOR | 00-7F | 40 | |
| S13 | BRIGHTNESS | 00-7F | 40 | |

**Note:** Refer to the SERVICE ADJUSTMENT for each corresponding values.

**Table - C**

## FEATURE

| SERVICE POSITION | ADJUST ITEM | DATA | | ADJUSTMENT CONTENTS |
|---|---|---|---|---|
| | | RANGE | INITIAL VALUE | |
| M01 | MS LEVEL | 00-0F | 0A | |
| M02 | MTS-VCO | 00-3F | 20 | |
| M03 | FILTER | 00-3F | 1C | |
| M04 | LOW SEPARATION | 00-3F | 20 | |
| M05 | HIGH SEPARATION | 00-3F | 1B | |

Note: Refer to the SERVICE ADJUSTMENT for each corresponding values.

**Table - D**

Holding down both the Vol-up/Ch-down buttons on the TV set at service mode for more than 2 seconds will automatically write the above initial values into IC2102.

| PART REPLACED | ADJUSTMENT | | NOTES |
|---|---|---|---|
| | NECESSARY | UNNECESSARY | |
| IC2001 | | X | Data is stored in IC2102. |
| IC201 | X | | The adjustment is needed to compensate for characteristics of parts including IC201. |
| IC2102 | X | | Holding down both the Vol-up/Ch-down buttons on the TV set in the service mode for more than 2 seconds will automatically write the above initial values into IC2102. |
| CRT | X | | Adjust items related to picture tube only. |

**Table - E**

# ■ SERVICE ADJUSTMENT

**Note:** Before making the service adjustment, make the bus data settings.

## +B Adjustment

**(1) For the chassis with the +B adjustment control**

1. Receive a good local channel.
2. Select VIDEO ADJUSTMENT RESET on the menu to get the video reset.
3. Connect a DC voltmeter between the +B line (at SW transformer) of R611 and the ground terminal.
4. Adjust R738 so that the voltmeter should read 128.5+0.5V/-0.25V.

**(2) For the chassis without the +B adjustment control**

1. Receive a good local channel.
2. Select VIDEO ADJUSTMENT RESET on the menu to get the video reset.
3. Connect a DC voltmeter between the +B line (at SW transformer) of R611 and the ground terminal.
4. Make sure that the voltmeter reads 128.5±1.5V.

## Video Level (TV Det Video Level) Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S02".
3. Set the data value to "02" first, then adjust the data to "04". (If out of spec, readjust the data in the range of "00" to "07" to obtain a normal contrast level.)

## RF AGC Adjustment

1. Receive a good local channel.
2. Enter the service mode signal category and select the service adjustment "S01".
3. Set the data value to point where no noise or beat appears.
4. Select another channel to confirm that no noise or beat appears.

   **Note: You have to exit the service mode first to select another channel.**

## Screen Adjustment

1. Connect to oscilloscope probe between TP854 and ground of the CRT unit.
2. Receive a good local channel.
3. Enter the service mode Signal category and set the service adjustment "S04" to step 30. Then select the service adjustment "S12" and set the data value to "00" to set the color level to the minimum level. (record the original data first). You may skip this step, if you selected a B/W picture or monoscope pattern. Set also the "S05/S06/S07" data to minimum level ("00").

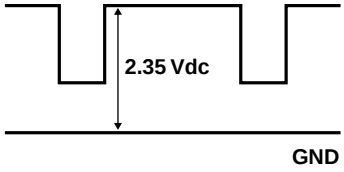



**Figure B: WAVEFORM FOR SCREEN ADJUSTMENT**

4. Select the service adjustment "S03" and set the data value to "01" to turn off the luminance signal (Y-mute).
5. Select the service adjustment "S14" and adjust the data value to obtain 2.35 volts as shown in **Figure B**.
6. Adjust the master screen control until the raster darkens to the point where raster is barely seen.
7. Adjust the service adjustment "S05" red, "S06" green, "S07" blue to obtain a good grey scale with normal white at low brightness level.
8. Select the service a adjustment "S03" and reset data to "00". Select the service adjustment "S12" and reset data to obtain normal color level.
9. Remove probe and reset the master screen control to obtain normal brightness range.

## White Balance Adjustment

1. Receive a good local channel.
2. Select the service adjustment "S12" and set the data value to "00" to set the color level to the minimun. You may skip this step, if you selected a B/W picture or monoscope.
3. Alternately adjust the service adjustment data of "S08" and "S09" until a good grey scale with normal white is obtained.
4. Select the service adjustment "S12" and reset data to obtain normal color level.

## Sub-Picture Adjustment

1. Receive a good local channel.
2. Make sure the customer picture control is set to maximum.
3. Enter the service mode and select the service adjustment "S10".
4. Adjust the data value to achieve normal contrast range.

## Sub-Tint Adjustment

1. Receive a good local channel.
2. Set the customer tint control to the center of it's range.
3. Enter the service mode and select the service adjustment "S11".
4. Adjust "S11" data value to obtain normal fresh tones.

## Sub-Color Adjustment

1. Receive a good local channel.
2. Make sure the customer color control is set to center position.
3. Enter the service mode and select the service adjustment "S12".
4. Adjust "S12" data value to obtain normal color level.

## Sub-Brightness Adjustment

1. Receive a good local channel.
2. Make sure the customer brightness control is set to center position.
3. Enter the service mode and select the service adjustment "S13".
4. Adjust "S13" data value to obtain normal brightness level.

### Vertical-Size, V-Linearity and V-S Correction Adjustments

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D02" for Vertical Size, "D05" for V-Linearity and "D06" for V-S Correction Adjustment.
3. Set in order "D05" for V-Linearity, "D06" for V-S Correction and set the data to get the best linearity.
4. Then adjust "D02" data until it become a proper vertical size.

### Horizontal Position Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D01".
3. Adjust "D01" data value to center the picture.

### Vertical-Phase Adjustment

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D03".
3. Adjust "D03" bus data to get the most acceptable vertical position.
   **Note: The step range is 20 (32)+12 (3 steps)/ -20 (5 steps). (Push once move 4 steps.)**

### Caption Position Adjustment (Horizontal)

1. Receive a good local channel.
2. Enter the service mode DEF category and select the adjustment "D04".
3. A black text box will appear on the screen. (see **Figure C**. below)
4. Adjust "D04" data value to balance the text box position in the center. (A=B).

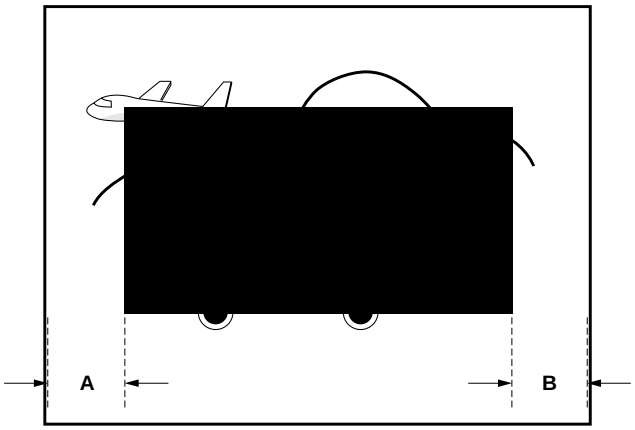



**Figure C.**

## ■ MTS ADJUSTMENT

### MTS Level Adjustment

1. Feed the following monaural signal to pin (14) of IC3001.
   Monaural signal: 300Hz, 245mVrms
2. Connect the rms voltmeter to pin (39) of IC3001.
3. Enter the service mode and select the service adjustment "M01".
4. Adjust the data so that the rms voltmeter reads 490 ±10mVrms.

### MTS VCO Adjustment

1. Keep the unit in no-signal state.
2. Connect the frequency counter to pin (39) of IC3001.
3. Connect a capacitor (100µF, 50V) in between positive(+) side of C3005 and ground.
4. Enter the service mode and select the service adjustment "M02"
5. Adjust the data so that the frequency counter reads. 62.94 ±0.75kHz.

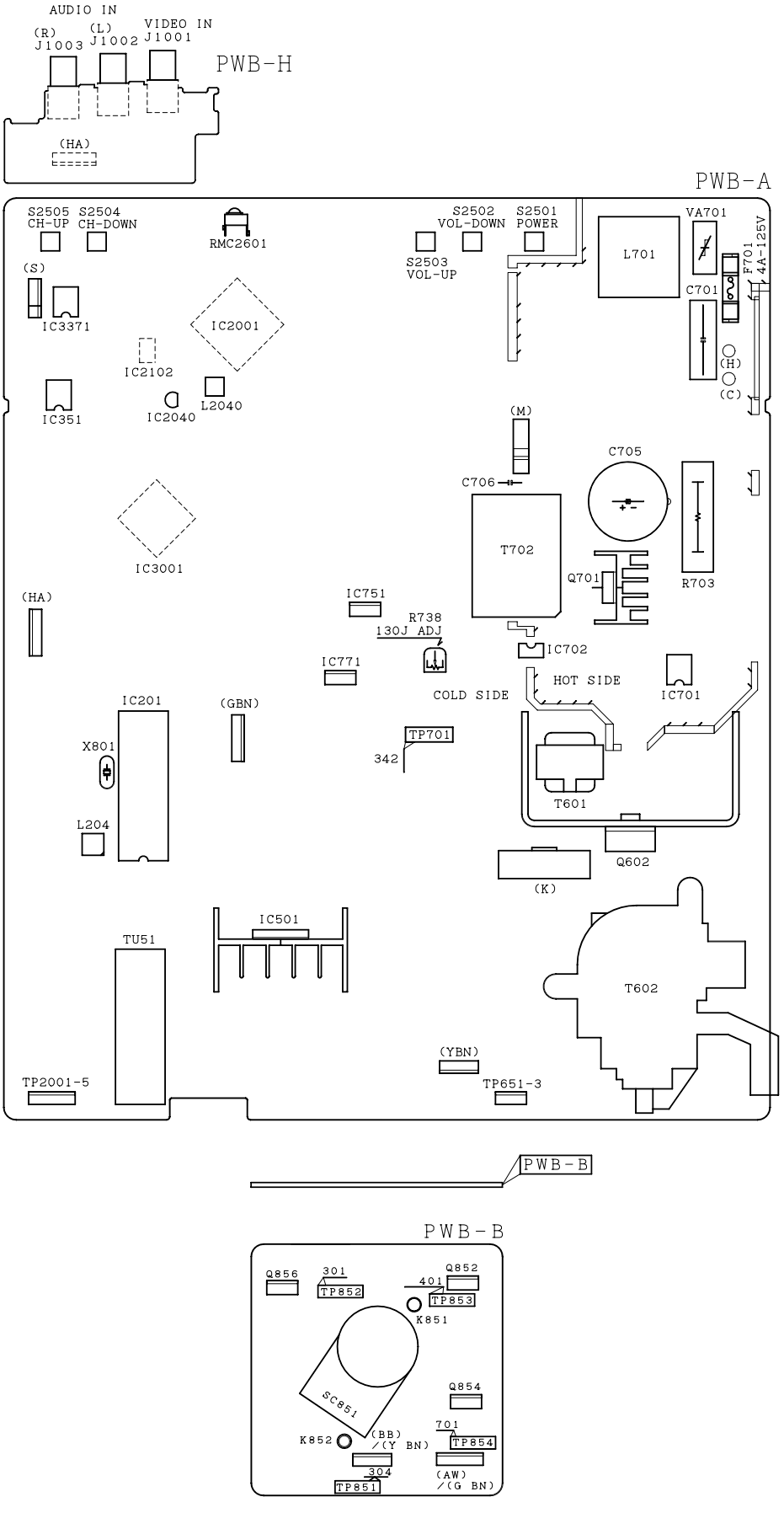
### Filter Adjustment

1. Feed the following stereo pilot signal to pin (14) of IC3001 .
   Stereo pilot signal: 9.4kHz, 600mVrms.
2. Enter the service mode and select the service adjustment "M03".
3. Adjust the data at the point where "OK" appears on the screen. The "OK" represents the approximate center of the adjustable range of the data.

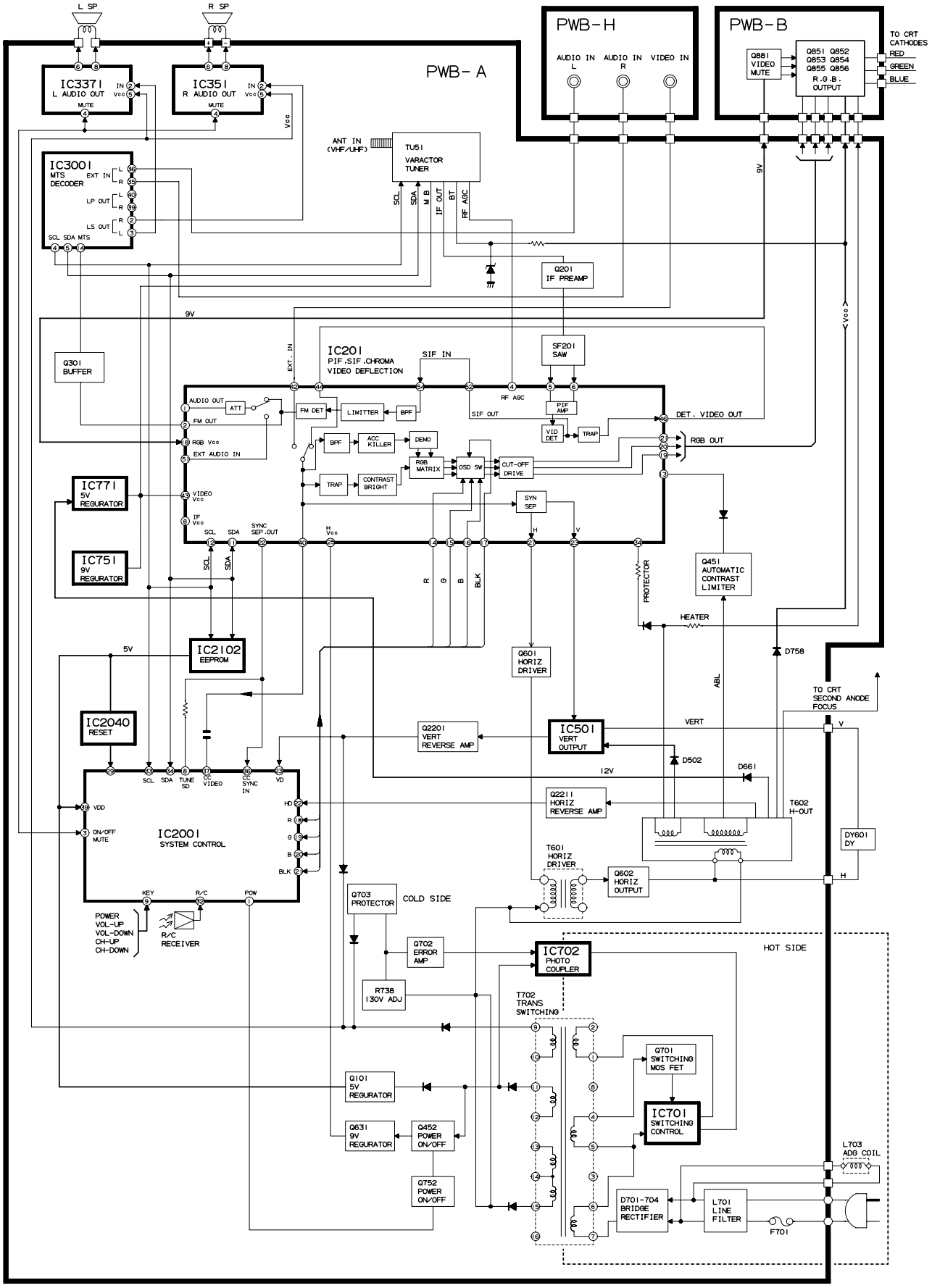
### Separation Adjustment

1. Connect the rms voltmeter to pin (39) of IC3001.
2. Receive the following composite stereo signal 1.
   Composite stereo signal: 30% modulation, left channel only, noise reduction on, 300Hz
3. Enter the service mode and select the service adjustment "M04".
4. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
5. Receive the following composite stereo signal 2.
   Stereo signal: 30% modulation, left channel only, noise reduction on, 3kHz
6. Enter the service mode and select the service adjustment "M05".
7. Adjust the data until the AC voltage reading of the rms voltmeter is minimum.
8. Take the above steps 1 thru 7 again for fine adjustment.

# CHASSIS LAYOUT



# BLOCK DIAGRAM



# DESCRIPTION OF SCHEMATIC DIAGRAM

***NOTES:***

1. *The unit of resistance "ohm" is omitted. (K=kΩ=1000Ω, M=MΩ)*
2. *All resistors are 1/10 watt, unless otherwise noted.*
3. *All capacitors are μ F, unless otherwise noted. (P=pF=μμF)*
4. *(G) indicates ±2% tolerance may be used.*
5. *⏚ indicates line isolated ground.*

***VOLTAGE MEASUREMENT CONDITIONS:***

1. *All DC voltages are measured with DVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μ V B & W or Color signal.*

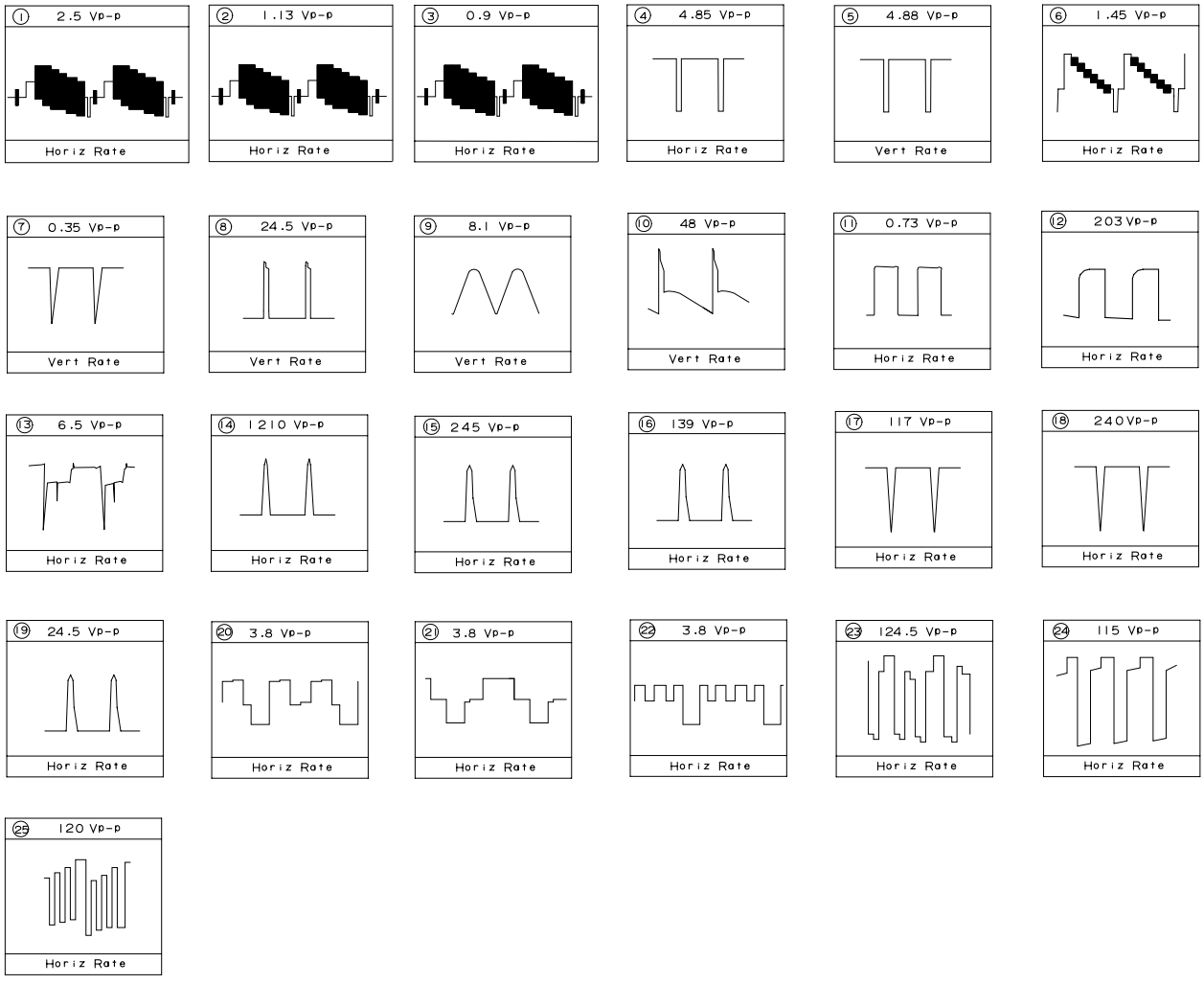
***WAVEFORM MEASUREMENT CONDITIONS:***

1. *Photographs taken on a standard gated color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. *◯▶ indicates waveform check points (See chart, waveforms are measured from point indicated to chassis ground.)*

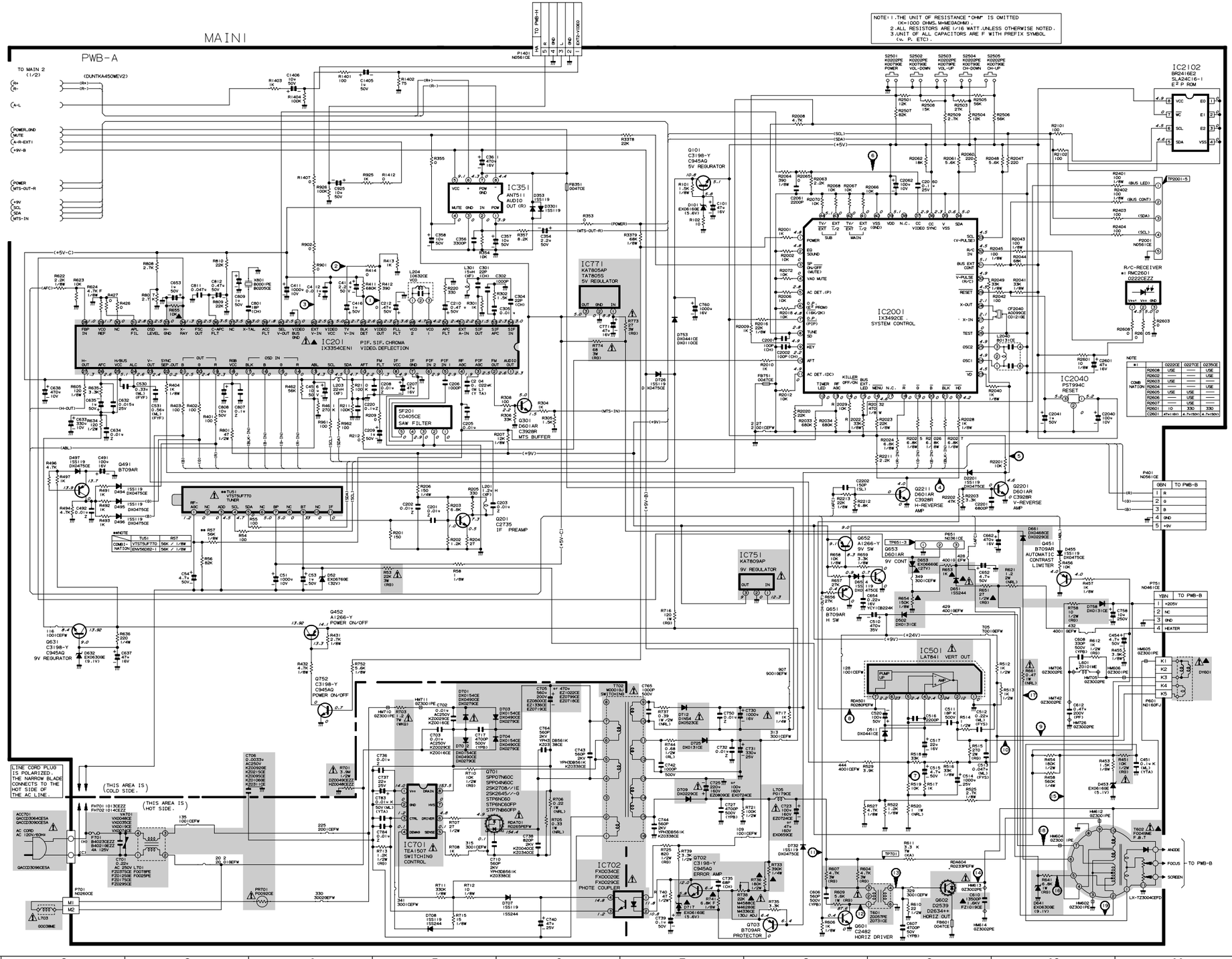
*⚠ AND SHADED ( ) COMPONENTS = SAFETY RELATED PARTS.*
*▲ MARK= X-RAY RELATED PARTS.*

*This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.*

# WAVEFORMS



# SCHEMATIC DIAGRAM: MAIN-1 Unit

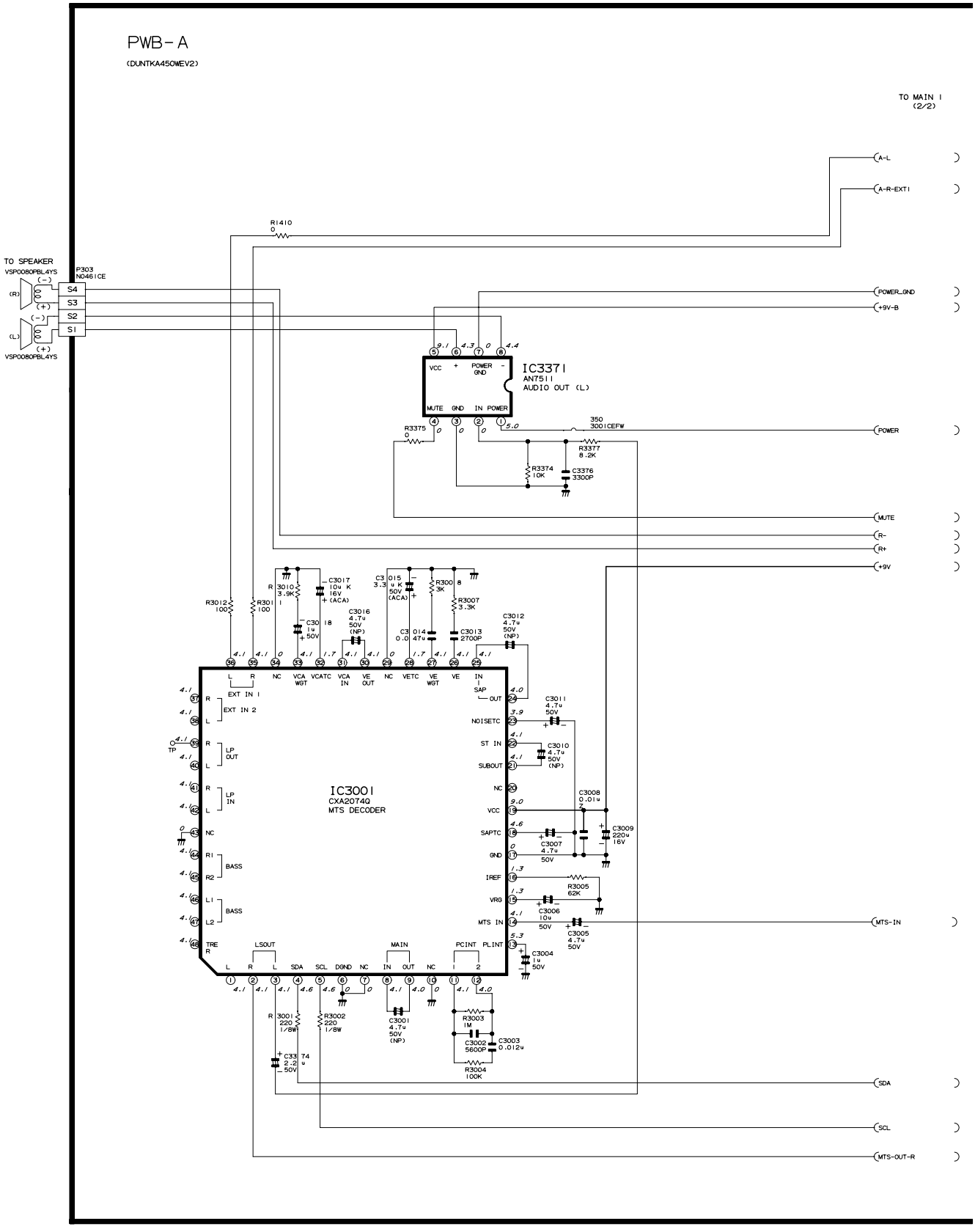


# SCHEMATIC DIAGRAM: MAIN-2 Unit

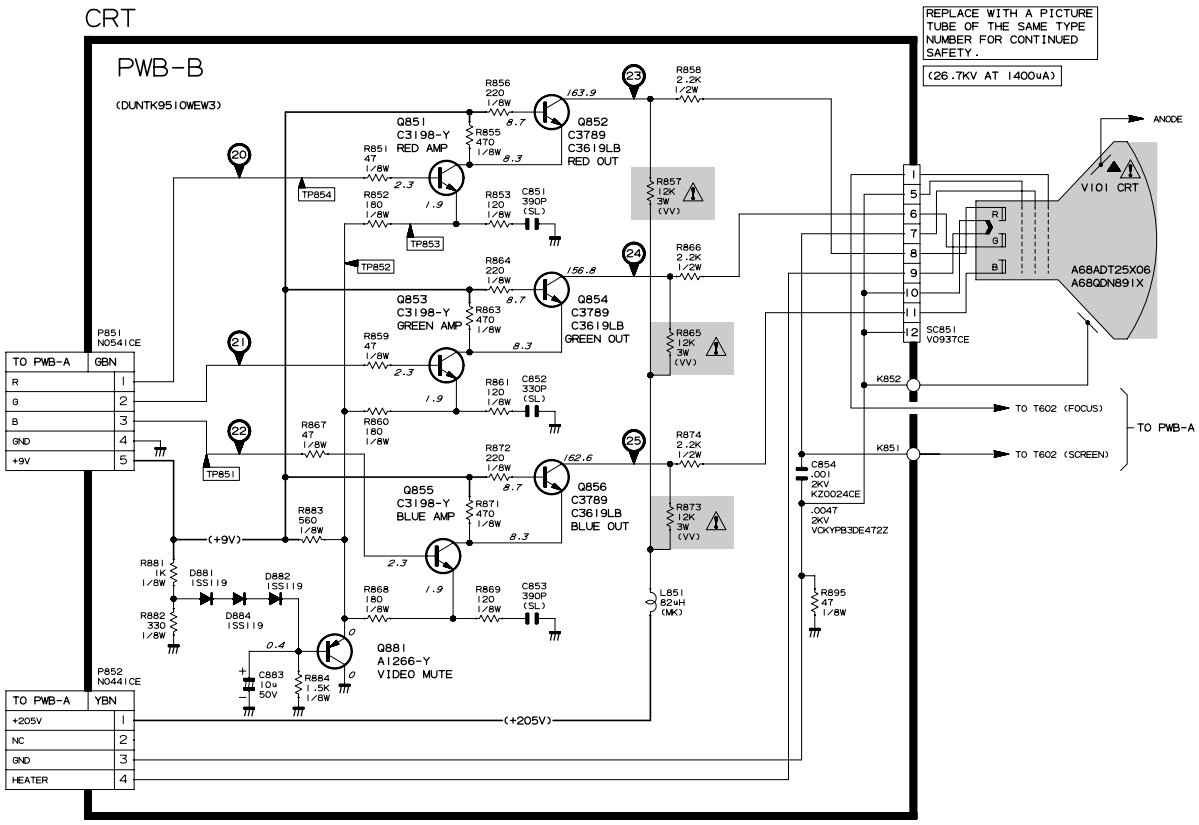
NOTE: 1.THE UNIT OF RESISTANCE "OHM" IS OMITTED
(K=1000 OHMS, M=MEGAOHM).
2.ALL RESISTORS ARE 1/16 WATT.UNLESS OTHERWISE NOTED.
3.UNIT OF ALL CAPACITORS ARE F WITH PREFIX SYMBOL
(u, P, ETC).

MAIN2

PWB-A
(DUNTKA450WEV2)

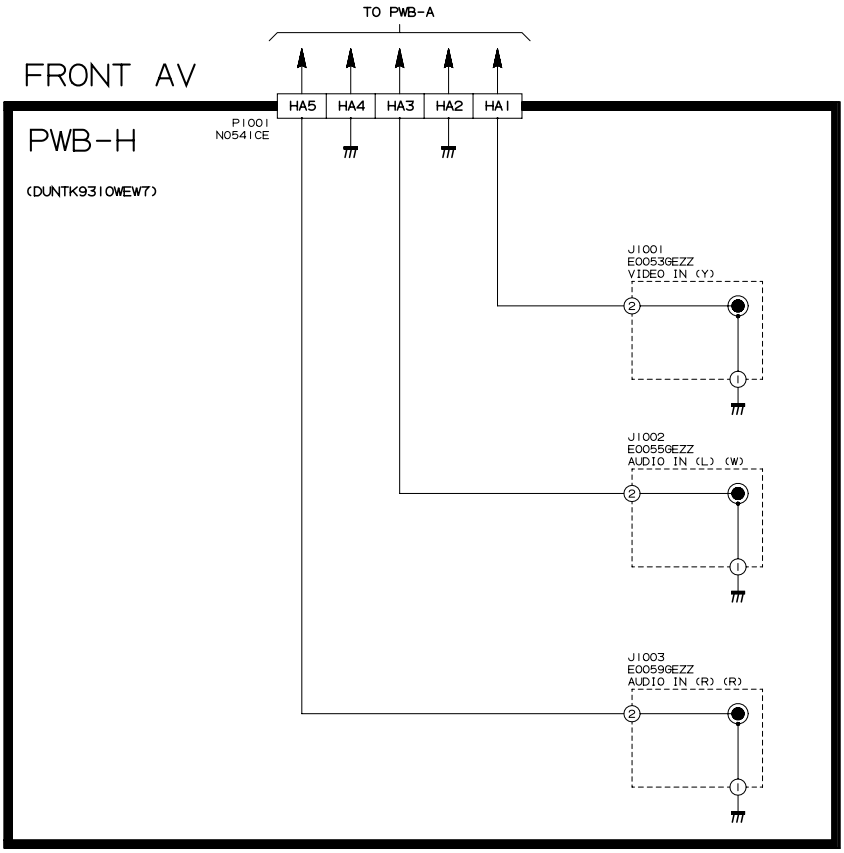


# SCHEMATIC DIAGRAM: CRT and FRONT A/V Unit

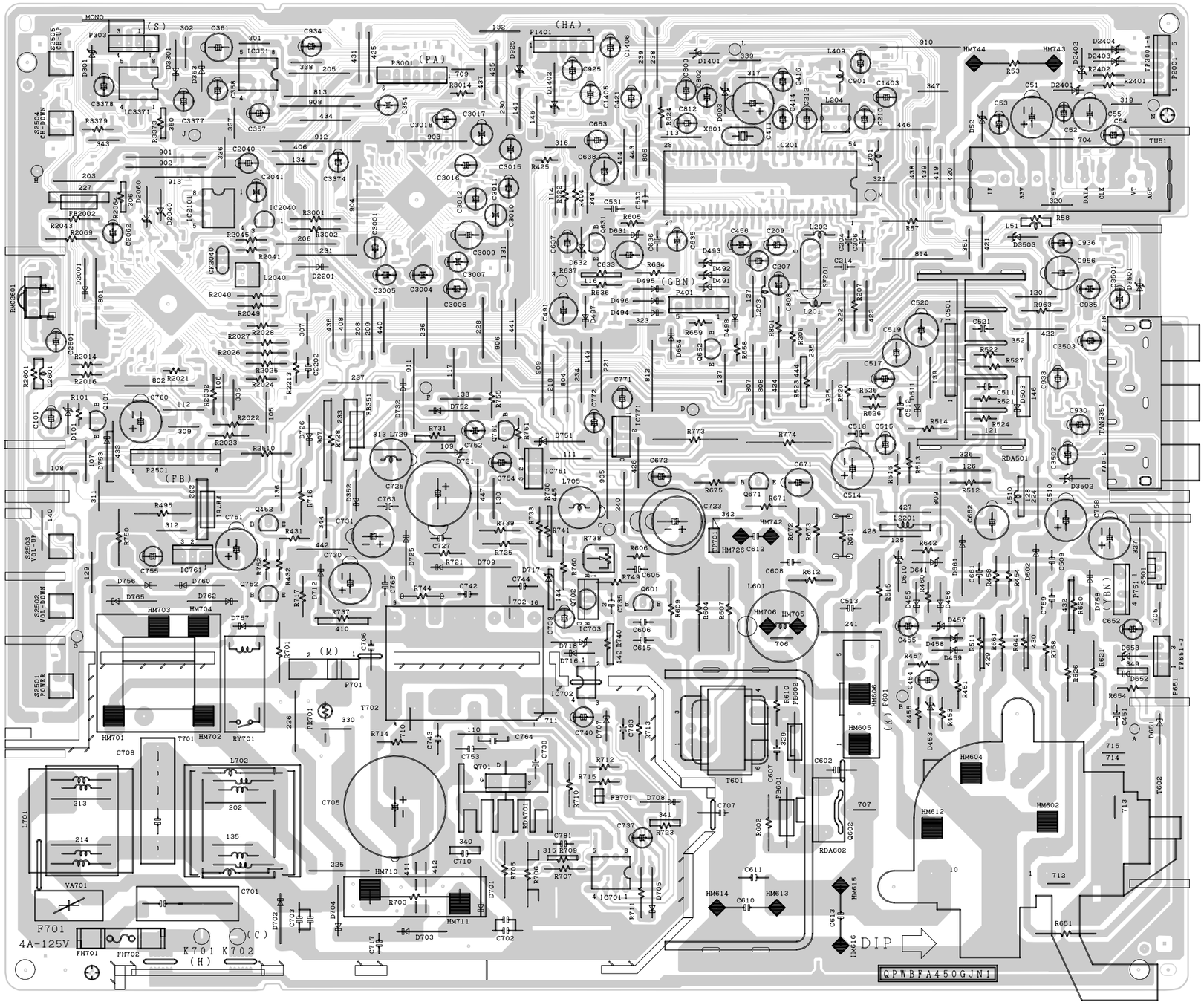



*1 NOTE

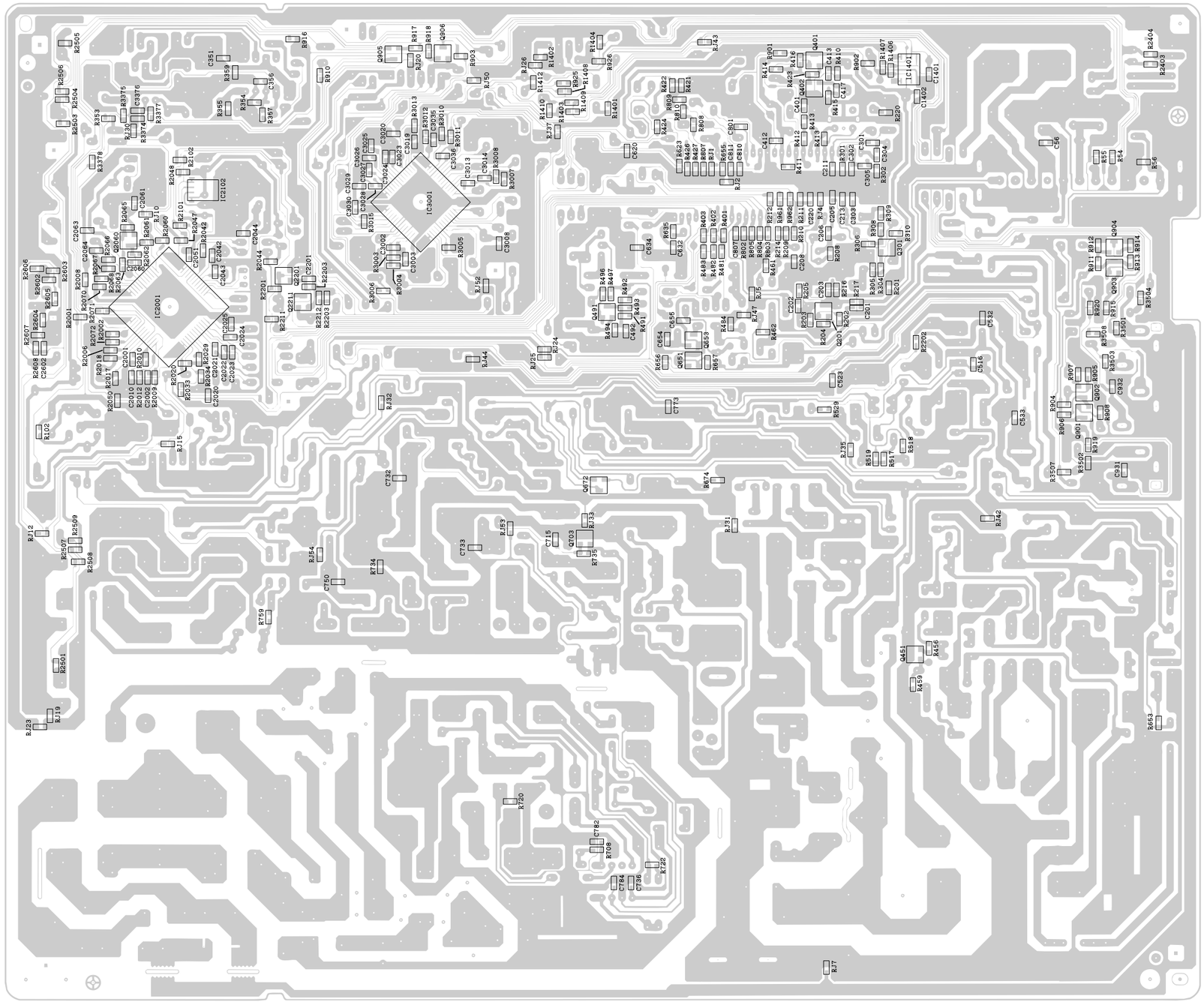
| | CRT | DY | R626 | R621 |
|---|---|---|---|---|
| COMBI-NATION | A68ADT25X06 | ITC | | 1.2/2W |
| | A68QDN891X | ITC | 2.7/1W | - |



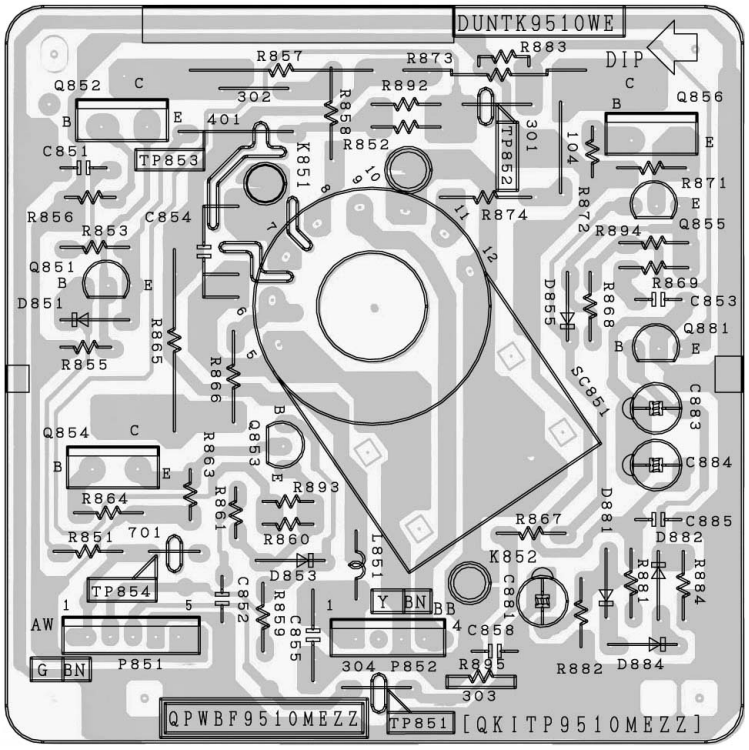
# PRINTED WIRING BOARD ASSEMBLIES



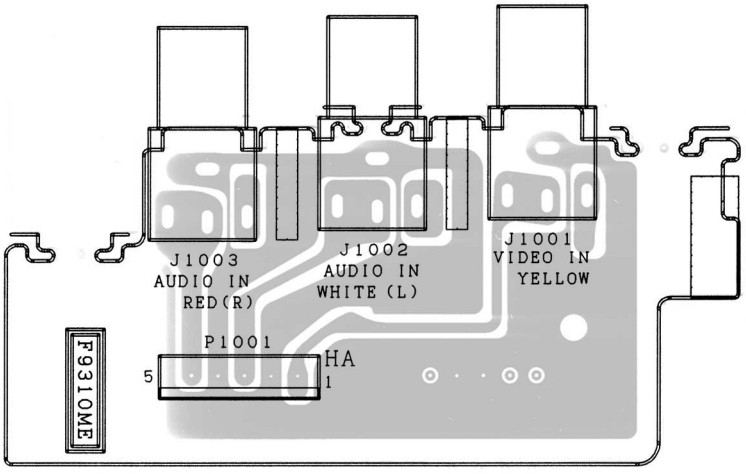

**PWB-A: MAIN Unit (Wiring Side)**



PWB-A: MAIN Unit (Chip Parts Side)




**PWB-B: CRT Unit (Wiring Side)**




**PWB-H: FRONT A/V Unit (Wiring Side)**

# PARTS LIST

## PARTS REPLACEMENT

Replacement parts which have these special safety characteristics identified in this manual; electrical components having such features are identified by ⚠ and shaded areas in the Replacement Parts Lists and Schematic Diagrams. The use of a substitute replacement part which dose no have the same safety characteristic as the factory recommended replacement parts shown in this service manual may create shock, fire or other hazards.

### "HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following informations.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

in **USA**: Contact your nearest SHARP Parts Distributor to order. For location of SHARP Parts Distributor, Please call Toll-Free; 1-800-BE-SHARP

★ MARK: SPARE PARTS-DELIVERY SECTION

▲ MARK: X- RAY RELATED PARTS

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

## PICTURE TUBE

| | | | | |
|---|---|---|---|---|
| ▲⚠ V101 | VB68ADT2506*S<br>or<br>VB68QDN891X*S | X | Picture Tube (I.T.C) | CK |
| ⚠ L703 | RCiLG0038MEZZ | X | Degaussing Coil | AQ |
| | QEARC2702MEZZ | X | Grounding Strap | AF |
| | MSPRT0002MEZZ | X | Spring | AE |
| | QCNW-0239MEZZ | X | Connecting Cord (DY) | AM |

| | CRT | DY | R626 | R621 |
|---|---|---|---|---|
| COMBI-NATION | A68ADT25X06 | ITC | | 1.2/2W |
| | A68QDN891X | ITC | 2.7/1W | - |

## PRINTED WIRING BOARD ASSEMBLIES
## *(NOT REPLACEMENT ITEM)*

| | | | |
|---|---|---|---|
| PWB-A DUNTKA450WEV2 | – | MAIN Unit | — |
| PWB-B DUNTK9510WEW3 | – | CRT Unit | — |
| PWB-H DUNTK9310WEW7 | – | FRONT A/V Unit | — |

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

# PWB-A: DUNTKA450WEV2
## MAIN UNIT

### TUNER

***NOTE: THE PARTS HERE SHOWN ARE SUPPLIED AS AN ASSEMBLY BUT NOT INDEPENDENTLY.***

| | | | | |
|---|---|---|---|---|
| ⚠ TU51 | VTUVTST5UF770<br>or<br>VTUENV56D82-1 | J | Tuner | AZ |

| | TU51 | R57 |
|---|---|---|
| COMBI-NATION | VTST5UF770 | 56K ⁄ 1⁄8W |
| | ENV56D82-1 | 56K ⁄ 1⁄8W |

### INTEGRATED CIRCUITS

| | | | | |
|---|---|---|---|---|
| ▲⚠ IC201 | RH-iX3354CEN1 | X | I.C. | AS |
| IC351 | VHiAN7511//-1 | J | AN7511 | AK |
| ⚠ IC501 | VHiLA7841//-1 | J | LA7841 | AM |
| ⚠ IC701 | VHiTEA1507/-1 | J | TEA1507P/N1 | AL |
| ⚠ IC702 | RH-FX0034CEZZ<br>or<br>RH-FX0002GEZZ<br>or<br>RH-FX0029CEZZ | J | PC817 | AE |
| ⚠ IC751 | VHiKA7809AP-1 | J | KIA7809API | AE |
| ⚠ IC771 | VHiKA7805AP-1<br>or<br>VHiTA7805S/-1 | J | KIA7805API | AE |
| IC2001 | RH-iX3492CEZZQ | X | TMPA8700CPF | AT |
| IC2040 | VHiPST994C/-1 | J | PST994C | AD |
| IC2102 | VHiBR2416E2-1<br>or<br>VHiSLA24C16-1 | J | BR24C16F | AK |
| IC3001 | VHiCXA2074Q-1 | J | CXA2074Q | AY |
| IC3371 | VHiAN7511//-1 | J | AN7511 | AK |

### TRANSISTORS

| | | | | |
|---|---|---|---|---|
| Q101 | VS2SC3198-Y-1<br>or<br>VS2SC945AQ/-1 | J | 2SC3198-Y | AA |
| Q201 | VS2SC2735//1E | J | 2SC2735 | AC |
| Q301 | VS2SD601AR/-1<br>or<br>VS2SC3928R/-1 | J | 2SD601AR | AC |
| Q451 | VS2SB709AR/-1 | J | 2SB709AR | AC |
| Q452 | VS2SA1266-Y-1 | J | 2SA1266-Y | AA |
| Q491 | VS2SB709AR/-1 | J | 2SB709AR | AC |
| Q601 | VS2SC2482//-1 | J | 2SC2482 | AD |
| ⚠ Q602 | VS2SD2539//1E<br>or<br>VS2SD2634++-1 | J | 2SD2539 | AP |
| Q631 | VS2SC3198-Y-1<br>or<br>VS2SC945AQ/-1 | J | 2SC3198-Y | AA |
| Q651 | VS2SB709AR/-1 | J | 2SB709AR | AC |
| Q652 | VS2SA1266-Y-1 | J | 2SA1266-Y | AA |
| Q653 | VS2SD601AR/-1 | J | 2SD601AR | AC |
| ⚠ Q701 | VSSPP07N60C-1<br>or<br>VSSPP04N60C-1<br>or<br>VS2SK2708//1E<br>or<br>VS2SK2645//-G<br>or<br>VSSTP6NC60+-1<br>or<br>VSSTP6NC60F-1<br>or<br>VSSTP7NB60F-1 | X | FET | AF |
| ⚠ Q702 | VS2SC3198-Y-1<br>or<br>VS2SC945AQ/-1 | J | 2SC3198-Y | AA |
| Q703 | VS2SB709AR/-1 | J | 2SB709AR | AC |

# PWB-A: DUNTKA450WEV2
## MAIN UNIT (Continued)

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|
| Q752 | VS2SC3198-Y-1 | J | 2SC3198-Y | AA |
| | or | | | |
| | VS2SC945AQ/-1 | | | |
| Q2201 | VS2SD601AR/-1 | J | 2SD601AR | AC |
| | or | | | |
| | VS2SC3928R/-1 | | | |
| Q2211 | VS2SD601AR/-1 | J | 2SD601AR | AC |
| | or | | | |
| | VS2SC3928R/-1 | | | |
| **DIODES** | | | | |
| D52 | RH-EX0676GEZZ | J | Zener Diode, 32V | AA |
| D101 | RH-EX0616GEZZ | J | Zener Diode, 5.6V | AA |
| D353 | VHD1SS119//-1 | J | Diode | AB |
| D453 | RH-EX0616GEZZ | J | Zener Diode, 5.1V | AA |
| D455 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D494 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D495 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D496 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D497 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| ⚠ D502 | RH-DX0131CEZZ | J | Diode | AC |
| D511 | RH-DX0441CEZZ | J | Diode | AC |
| D632 | RH-EX0630GEZZ | J | Zener Diode, 9.1V | AA |
| ⚠ D641 | RH-EX0630GEZZ | J | Zener Diode, 9.1V | AA |
| ▲⚠ D651 | VHD1SS244//-1 | J | Diode | AB |
| ▲⚠ D653 | RH-EX0666GEZZ | J | Zener Diode, 27V | AB |
| D654 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| ⚠ D661 | RH-DX0468CEZZ | J | Diode | AE |
| | or | | | |
| | RH-DX0229CEZZ | | | |
| ⚠ D701 | RH-DX0154CEZZ | J | Diode | AC |
| | or | | | |
| | RH-DX0490CEZZ | | | |
| | or | | | |
| | RH-DX0279CEZZ | | | |
| ⚠ D702 | RH-DX0154CEZZ | J | Diode | AC |
| | or | | | |
| | RH-DX0490CEZZ | | | |
| | or | | | |
| | RH-DX0279CEZZ | | | |
| ⚠ D703 | RH-DX0154CEZZ | J | Diode | AC |
| | or | | | |
| | RH-DX0490CEZZ | | | |
| | or | | | |
| | RH-DX0279CEZZ | | | |
| ⚠ D704 | RH-DX0154CEZZ | J | Diode | AC |
| | or | | | |
| | RH-DX0490CEZZ | | | |
| | or | | | |
| | RH-DX0279CEZZ | | | |
| D707 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | VHD1SS244//-1 | | | |
| D708 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | VHD1SS244//-1 | | | |
| ⚠ D709 | RH-DX0229CEZZ | J | Diode | AF |
| ⚠ D712 | VHDD1NS4///-1 | J | Diode | AE |
| | or | | | |
| | RH-DX0523CEZZ | | | |
| ▲⚠ D717 | RH-EX0616GEZZ | J | Zener Diode, 5.6V | AA |
| ⚠ D725 | RH-DX0131CEZZ | J | Diode | AC |
| D726 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D732 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D753 | RH-DX0441CEZZ | J | Diode | AC |
| | or | | | |
| | RH-DX0110CEZZ | | | |
| ⚠ D758 | RH-DX0131CEZZ | J | Diode | AC |
| D2201 | VHD1SS119//-1 | J | Diode | AB |
| | or | | | |
| | RH-DX0475CEZZ | | | |
| D3301 | VHD1SS119//-1 | J | Diode | AB |
| ⚠ VA701 | RH-VX0048CEZZ | J | Varistor | AE |
| | or | | | |
| | RH-VX0035CEZZ | | | |
| | or | | | |
| | RH-VX0019CEZZ | | | |
| | or | | | |
| | RH-VX0074CEZZ | | | |
| **PACKAGED CIRCUITS** | | | | |
| ⚠ PR701 | RMPTP0092CEZZ | J | Packaged Circuit | AH |
| X801 | RCRSB0001PEZZ | R | Crystal | AL |
| | or | | | |
| | RCRSB0205CEZZ | | | |
| **FILTERS AND COILS** | | | | |
| CF2040 | RFiLA0099CEZZ | J | Ceramic Filter | AE |
| | or | | | |
| | RFiLC0121GEZZ | | | |
| SF201 | RFiLC0405CEZZ | J | SAW Filter | AH |
| L201 | VP-XF1R2K0000 | J | Peaking 1.2µH | AB |
| L203 | VP-XF220K0000 | J | Peaking 22µH | AB |
| L204 | RCiLi0632CEZZ | J | IF Coil | AE |
| L301 | VP-XF150K0000 | J | Peaking 15µH | AB |
| L601 | RCiLZ0101MEZZ | J | Coil | AL |
| ⚠ L701 | RCiLF0078PEZZ | R | Coil | AF |
| | or | | | |
| | RCiLF0025PEZZ | | | |
| ⚠ L705 | RCiLP0179CEZZ | J | Coil | AD |
| L2040 | RCiLB0131CEZZ | J | Oscillation Coil | AE |
| **TRANSFORMERS** | | | | |
| ⚠ T601 | RTRNZ0057PEZZ | R | Transformer | AK |
| | or | | | |
| | RTRNZ0731CEZZ | | | |
| ▲⚠ T602 | RTRNF0049MEZZ | X | H-Volt Transformer | AY |
| ⚠ T702 | RTRNW0001GJZZ | X | Transformer | AN |
| **CONTROL** | | | | |
| ▲⚠ R738 | RVR-M4588CEZZ+ | J | 22k(B) 130V Adj. | AE |

**CAPACITORS**

*[EL.··· Electrolytic, M-Poly.··· Metalized Polypro Film]*

| | | | | | | |
|---|---|---|---|---|---|---|
| C51 | VCEA0A1AW108M | J | 1000 | 10V | EL. | AC |
| C53 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C54 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C101 | VCEA0A1CW476M | J | 47 | 16V | EL. | AB |
| C201 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C202 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C203 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C204 | VCQYTA1HM223K | J | 0.022 | 50V | Mylar | AB |
| C205 | VCKYCY1HB103K | J | 0.01 | 50V | Ceramic | AA |
| C206 | VCKYCY1HB102K | J | 1000p | 50V | Ceramic | AA |
| C207 | VCEA0A1CW476M | J | 47 | 16V | EL. | AB |
| C208 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C209 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C210 | VCEA0A1HW474M | J | 0.47 | 50V | EL. | AB |
| C212 | VCEA0A1HW474M | J | 0.47 | 50V | EL. | AB |
| C220 | VCKYCY1EF104Z | J | 0.1 | 25V | Ceramic | AA |
| C301 | VCCCCY1HH220J | J | 22p | 50V | Ceramic | AA |

# PWB-A: DUNTKA450WEV2
## MAIN UNIT (Continued)

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| C302 | VCKYCY1HB102K | J | 1000p | 50V | Ceramic | AA |
| C304 | VCCCCY1HH220J | J | 22p | 50V | Ceramic | AA |
| C305 | VCKYCY1HB103K | J | 0.01 | 50V | Ceramic | AA |
| C354 | VCEA0A1HW225M | J | 2.2 | 50V | EL. | AB |
| C356 | VCKYCY1HB332K | J | 3300p | 50V | Ceramic | AA |
| C357 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C358 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C361 | VCEA0A1CW477M | J | 470 | 16V | EL. | AC |
| C411 | VCEA0A1AW108M | J | 1000 | 10V | EL. | AC |
| C412 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C414 | VCEA0A1HW225M | J | 2.2 | 50V | EL. | AB |
| C416 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C451 | VCQYTA1HM104K | J | 0.1 | 50V | Mylar | AC |
| C454 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C456 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C491 | VCEA0A1CW107M | J | 100 | 16V | EL. | AC |
| C492 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C510 | VCEA0A1VW477M | J | 470 | 35V | EL. | AB |
| C511 | VCCSPA2HL180K | J | 18p | 500V | Ceramic | AA |
| C512 | VCFYSA1JB224J+ | X | 0.22 | 63V | Mylar | AF |
| C513 | VCFYSA1JB473J | J | 0.047 | 63V | Mylar | AC |
| C514 | VCEA0A1EW108M | J | 1000 | 25V | EL. | AD |
| C515 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C516 | VCKYCY1HB222K | J | 2200p | 50V | Ceramic | AA |
| C517 | VCEA0A1CW226M | J | 22 | 16V | EL. | AB |
| C520 | VCEA0A1HW107M | J | 100 | 50V | EL. | AB |
| C530 | VCFYFA1HA334J | J | 0.33 | 50V | Mylar | AB |
| C531 | VCFYFA1HA564J | J | 0.56 | 50V | Mylar | AB |
| C606 | VCKYPA2HB561K | J | 560p | 500V | Ceramic | AA |
| C607 | VCKYPA1HB472K | J | 4700p | 50V | Ceramic | AA |
| C608 | VCKYPA2HB331K | J | 330p | 500V | Ceramic | AA |
| ▲⚠ C610 | RC-FZ1019CEZZ | X | 13500p | 1.6kV | Plastic | AG |
| C612 | VCFPVC2DB474J | J | 0.47 | 200V | M-Poly. | AE |
| C632 | VCKYCY1EB153K | J | 0.015 | 25V | Ceramic | AA |
| C633 | VCEA0A1AW337M+ | J | 330 | 10V | EL. | AE |
| C634 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C635 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C637 | VCEA0A1CW476M | J | 47 | 16V | EL. | AB |
| C638 | VCEA0A1AW477M | J | 470 | 10V | EL. | AC |
| C652 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C653 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C654 | VCKYCY1CB224K* | X | 0.22 | 16V | Ceramic | AE |
| C662 | VCEA0A1CW477M | J | 470 | 16V | EL. | AC |
| ⚠ C701 | RC-FZ037SCEZZ | J | 0.22 | AC250V | Plastic | AD |
| | or | | | | | |
| | RC-FZ012SGEZZ | | | | | |
| | or | | | | | |
| | RC-FZ017SCEZZ | | | | | |
| | or | | | | | |
| | RC-FZ029SCEZZ | | | | | |
| C702 | RC-KZ0029CEZZ | J | 0.01 | AC250V | Ceramic | AC |
| | or | | | | | |
| | RC-KZ0016CEZZ | | | | | |
| C703 | RC-KZ0029CEZZ | J | 0.01 | AC250V | Ceramic | AC |
| | or | | | | | |
| | RC-KZ0016CEZZ | | | | | |
| ⚠ C705 | RC-EZ0800CEZZ | J | 560 | 200V | EL. | AQ |
| | or | | | | | |
| | RC-EZ1336CEZZ | | | | | |
| | or | | | | | |
| | RC-EZ0719CEZZ | | | | | |
| | or | | | | | |
| | RC-EZ1022CEZZ | X | 470 | 200V | EL. | AN |
| | or | | | | | |
| | RC-EZ0799CEZZ | | | | | |
| | or | | | | | |
| | RC-EZ0718CEZZ | | | | | |
| ⚠ C706 | RC-KZ0092GEZZ | J | 0.0033 | AC250V | Ceramic | AC |
| | or | | | | | |
| | RC-KZ021SCEZZ | | | | | |
| | or | | | | | |
| | RC-KZ009SCEZZ | | | | | |
| | or | | | | | |
| | RC-KZ0106GEZZ | | | | | |
| | or | | | | | |
| | RC-KZ0311CEZZ | | | | | |
| C710 | VCKYPH3DB561K | J | 560p | 2kV | Ceramic | AC |
| | or | | | | | |
| | RC-KZ0338CEZZ | | | | | |
| C717 | VCKYPA2HB472K | J | 4700p | 500V | Ceramic | AB |
| ⚠ C723 | RC-EZ0724CEZZ | J | 100 | 160V | EL. | AG |
| | or | | | | | |
| | RC-EX0659CEZZ | J | 47 | 160V | EL. | |
| ⚠ C725 | RC-EZ0809CEZZ | J | 220 | 160V | EL. | AL |
| | or | | | | | |
| | RC-EX0724CEZZ | J | 100 | 160V | EL. | |
| C727 | VCKYPA2HB472K | J | 4700p | 500V | Ceramic | AB |
| ⚠ C730 | VCEA0A1CW108M | J | 1000 | 16V | EL. | AD |
| ⚠ C731 | VCEA0A1EW337M | J | 330 | 25V | EL. | AC |
| C732 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C735 | VCCCPA1HH680J | J | 68p | 50V | Ceramic | AA |
| C736 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C737 | VCEA0A1EW226M | J | 22 | 25V | EL. | AB |
| C738 | RC-KZ0040CEZZ | J | 820p | 2kV | Ceramic | AD |
| | or | | | | | |
| | RC-KZ0340CEZZ | | | | | |
| C739 | VCEA0A1HW104M | J | 0.1 | 50V | EL. | AB |
| C740 | VCEA0A1EW476M | J | 47 | 25V | EL. | AB |
| C742 | VCKYPA2HB102K | J | 1000p | 500V | Ceramic | AA |
| C743 | VCKYPH3DB561K | J | 560p | 2kV | Ceramic | AC |
| | or | | | | | |
| | RC-KZ0338CEZZ | | | | | |
| C744 | VCKYPH3DB561K | J | 560p | 2kV | Ceramic | AC |
| | or | | | | | |
| | RC-KZ0338CEZZ | | | | | |
| C750 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C758 | VCEA0A2EW106M | J | 10 | 250V | EL. | AD |
| C760 | VCEA0A1CW108M | J | 1000 | 16V | EL. | AD |
| C764 | VCKYPH3DB561K | J | 560p | 2kV | Ceramic | AC |
| | or | | | | | |
| | RC-KZ0338CEZZ | | | | | |
| C765 | VCKYPA2HB102K | J | 1000p | 500V | Ceramic | AA |
| C771 | VCEA0A1CW476M | J | 47 | 16V | EL. | AB |
| C783 | VCQYTA1HM103K | J | 0.01 | 50V | Mylar | AB |
| C784 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C801 | VCCCCY1HH180J | J | 18p | 50V | Ceramic | AA |
| C807 | VCKYCY1EF104Z | J | 0.1 | 25V | Ceramic | AA |
| C808 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C809 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C811 | VCKYCY1CB473K | J | 0.047 | 16V | Ceramic | AA |
| C812 | VCEA0A1HW474M | J | 0.47 | 50V | EL. | AB |
| C925 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C1405 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C1406 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C2001 | VCCCCY1HH101J | J | 100p | 50V | Ceramic | AA |
| C2002 | VCCCCY1HH101J | J | 100p | 50V | Ceramic | AA |
| C2040 | VCEA0A1AW107M | J | 100 | 10V | EL. | AB |
| C2041 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C2060 | VCKYCY1EF104Z | J | 0.1 | 25V | Ceramic | AA |
| C2061 | VCKYCY1HB222K | J | 2200p | 50V | Ceramic | AA |
| C2062 | VCEA0A1AW107M | J | 100 | 10V | EL. | AB |
| C2201 | VCKYCY1HB682K | J | 6800p | 50V | Ceramic | AA |
| C2202 | VCCSPA1HL151J | J | 150p | 50V | Ceramic | AA |
| C2601 | VCEA0A1CW476M | J | 47 | 16V | EL. | AB |
| | or | | | | | |
| | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C3001 | VCE9GA1HW475M | J | 4.7 | 50V | EL. (N.P) | AB |
| C3002 | VCKYCY1HB562K | J | 5600p | 50V | Ceramic | AA |
| C3003 | VCKYCY1HB123K | J | 0.012 | 50V | Ceramic | AB |
| C3004 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C3005 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C3006 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |
| C3007 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C3008 | VCKYCY1HF103Z | J | 0.01 | 50V | Ceramic | AA |
| C3009 | VCEA0A1CW227M | J | 220 | 16V | EL. | AC |
| C3010 | VCE9GA1HW475M | J | 4.7 | 50V | EL. (N.P) | AB |

# PWB-A: DUNTKA450WEV2
## MAIN UNIT (Continued)

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| C3011 | VCEA0A1HW475M | J | 4.7 | 50V | EL. | AB |
| C3012 | VCE9GA1HW475M | J | 4.7 | 50V | EL. (N.P) | AB |
| C3013 | VCKYCY1HB272K | J | 2700p | 50V | Ceramic | AA |
| C3014 | VCKYCY1CB473K | J | 0.047 | 16V | Ceramic | AA |
| C3015 | VCEACA1HC335K | X | 3.3 | 50V | EL. | AF |
| C3016 | VCE9GA1HW475M | J | 4.7 | 50V | EL. (N.P) | AB |
| C3017 | VCEACA1CC106K | J | 10 | 16V | EL. | AC |
| C3018 | VCEA0A1HW105M | J | 1.0 | 50V | EL. | AB |
| C3374 | VCEA0A1HW225M | J | 2.2 | 50V | EL. | AB |
| C3376 | VCKYCY1HB332K | J | 3300p | 50V | Ceramic | AA |

### RESISTORS

*[M-Ox.··· Metal Oxide, M-Film··· Metal Film]*

| Ref. No. | Part No. | ★ | Description | | | Code |
|---|---|---|---|---|---|---|
| RJ1 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ2 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ4 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ5 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ10 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ23 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ24 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ26 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ30 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ37 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ42 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ43 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ47 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ50 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ52 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| RJ53 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R53 | VRS-RG3LB223J+ | X | 22k | 3W | M-Ox. | AF |
| R54 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R55 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R56 | VRS-CY1JF823J | J | 82k | 1/16W | M-Ox. | AA |
| R57 | VRD-RA2BE563J | J | 56k | 1/8W | Carbon | AA |
| R58 | VRD-RA2BE1R0J | J | 1 | 1/8W | Carbon | AA |
| R101 | VRD-RA2BE152J | J | 1.5k | 1/8W | Carbon | AA |
| R102 | VRS-CY1JF100J | J | 10 | 1/16W | M-Ox. | AA |
| R201 | VRS-CY1JF151J | J | 150 | 1/16W | M-Ox. | AA |
| R202 | VRS-CY1JF122J | J | 1.2k | 1/16W | M-Ox. | AA |
| R203 | VRS-CY1JF682J | J | 6.8k | 1/16W | M-Ox. | AA |
| R204 | VRS-CY1JF270J | J | 27 | 1/16W | M-Ox. | AA |
| R205 | VRS-CY1JF331J | J | 330 | 1/16W | M-Ox. | AA |
| R206 | VRD-RA2EE151J | J | 150 | 1/4W | Carbon | AA |
| R207 | VRD-RA2BE123J | J | 12k | 1/8W | Carbon | AA |
| R209 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R210 | VRS-CY1JF104J | J | 100k | 1/16W | M-Ox. | AA |
| R211 | VRS-CY1JF104J | J | 100k | 1/16W | M-Ox. | AA |
| R212 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R220 | VRS-CY1JF331J | J | 330 | 1/16W | M-Ox. | AA |
| R301 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R302 | VRS-CY1JF152J | J | 1.5k | 1/16W | M-Ox. | AA |
| R304 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R305 | VRS-CY1JF152J | J | 1.5k | 1/16W | M-Ox. | AA |
| R306 | VRS-CY1JF333J | J | 33k | 1/16W | M-Ox. | AA |
| R308 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R353 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R354 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R355 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R357 | VRS-CY1JF822J | J | 8.2k | 1/16W | M-Ox. | AA |
| R401 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R402 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R403 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R404 | VRD-RA2BE102J | J | 1k | 1/8W | Carbon | AA |
| R411 | VRS-CY1JF684J | J | 680k | 1/16W | M-Ox. | AA |
| R412 | VRS-CY1JF391J | J | 390 | 1/16W | M-Ox. | AA |
| R413 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R414 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R426 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R427 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R431 | VRD-RA2BE272J | J | 2.7k | 1/8W | Carbon | AA |
| ⚠ R432 | VRD-RA2BE472J | J | 4.7k | 1/8W | Carbon | AA |
| R451 | VRS-RG2HC103J | J | 10k | 1/2W | M-Ox. | AA |
| R453 | VRD-RA2BE152J | J | 1.5k | 1/8W | Carbon | AA |
| R454 | VRD-RM2HD184J | J | 180k | 1/2W | Carbon | AA |
| R455 | VRD-RA2BE392J | J | 3.9k | 1/8W | Carbon | AA |
| R456 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R457 | VRD-RA2BE102J | J | 1k | 1/8W | Carbon | AA |
| R458 | VRD-RA2EE564J | J | 560k | 1/4W | Carbon | AA |
| R461 | VRS-CY1JF274J | J | 270k | 1/16W | M-Ox. | AA |
| R462 | VRS-CY1JF563J | J | 56k | 1/16W | M-Ox. | AA |
| R491 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R492 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R493 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R494 | VRS-CY1JF472J | J | 4.7k | 1/16W | M-Ox. | AA |
| R496 | VRS-CY1JF472J | J | 4.7k | 1/16W | M-Ox. | AA |
| R497 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R512 | VRD-RM2HD102J | J | 1k | 1/2W | Carbon | AA |
| R513 | VRD-RM2HD102J | J | 1k | 1/2W | Carbon | AA |
| R514 | VRD-RM2HD1R0J | J | 1 | 1/2W | Carbon | AA |
| R515 | VRS-RG3DB271J+ | X | 270 | 2W | M-Ox. | AE |
| R516 | VRD-RA2BE333J | J | 33k | 1/8W | Carbon | AA |
| R517 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R518 | VRS-CY1JF333J | J | 33k | 1/16W | M-Ox. | AA |
| R519 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R520 | VRN-RL3AB1R0J+ | X | 1 | 1W | M-Film | AE |
| R522 | VRD-RA2BE122J | J | 1.2k | 1/8W | Carbon | AA |
| R525 | VRD-RA2BE272J | J | 2.7k | 1/8W | Carbon | AA |
| R527 | VRD-RA2BE472J | J | 4.7k | 1/8W | Carbon | AA |
| R529 | VRS-CY1JF392J | J | 3.9k | 1/16W | M-Ox. | AA |
| ⚠ R604 | VRS-RG3LB472J+ | X | 4.7k | 3W | M-Ox. | AF |
| R605 | VRD-RA2BE121J | J | 120 | 1/8W | Carbon | AA |
| R606 | VRD-RA2BE102J | J | 1k | 1/8W | Carbon | AA |
| ⚠ R607 | VRS-RG3LB472J+ | X | 4.7k | 3W | M-Ox. | AF |
| ⚠ R609 | VRS-RG3AB562J+ | X | 5.6k | 1W | M-Ox. | AE |
| R610 | VRD-RM2HD220J | J | 22 | 1/2W | Carbon | AA |
| R611 | VRS-KA3NG3R3K | J | 3.3 | 7W | M-Ox. | AD |
| R612 | VRS-RG2HC102J | J | 1k | 1/2W | M-Ox. | AA |
| ⚠ R621 | VRN-RL3DB1R2J | X | 1.2 | 2W | M-Film | AF |
| R622 | VRD-RA2BE222J | J | 2.2k | 1/8W | Carbon | AA |
| R623 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R624 | VRN-RA2BK472F | J | 4.7k | 1/8W | M-Film | AA |
| R626 | VRN-RL3AB2R7J+ | X | 2.7 | 1W | M-Film | AE |
| R634 | VRD-RM2HD121J | J | 120 | 1/2W | Carbon | AA |
| R635 | VRS-CY1JF332J | J | 3.3k | 1/16W | M-Ox. | AA |
| R636 | VRD-RA2EE221J | J | 220 | 1/4W | Carbon | AA |
| ⚠ R641 | VRS-RG3AB682J+ | X | 6.8k | 1W | M-Ox. | AE |
| ▲⚠ R651 | VRS-RG2HC270J+ | X | 27 | 1/2W | M-Ox. | AE |
| ▲⚠ R653 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| ▲⚠ R654 | VRD-RA2BE154J | J | 150k | 1/8W | Carbon | AA |
| ▲⚠ R655 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R656 | VRS-CY1JF273J | J | 27k | 1/16W | M-Ox. | AA |
| R657 | VRS-CY1JF273J | J | 27k | 1/16W | M-Ox. | AA |
| R658 | VRD-RA2BE103J | J | 10k | 1/8W | Carbon | AA |
| R659 | VRD-RA2BE332J | J | 3.3k | 1/8W | Carbon | AA |
| ⚠ R661 | VRN-RL3ABR47J+ | X | 0.47 | 1W | M-Film | AE |
| ⚠ R701 | RR-DZ0049CEZZ | J | 3.9M | 1/2W | Carbon | AB |
| | or | | | | | |
| | RR-HZ0048CEZZ | | | | | |
| ⚠ R703 | VRW-KQ3NC1R2K | J | 1.2 | 7W | Cement | AE |
| ⚠ R705 | VRN-RL3ABR33J+ | X | 0.33 | 1W | M-Film | AE |
| ⚠ R706 | VRN-RL3ABR22J+ | X | 0.22 | 1W | M-Film | AE |
| R707 | VRD-RM2HD270J | J | 27 | 1/2W | Carbon | AA |
| R708 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R710 | VRS-RG2HC103J | J | 10k | 1/2W | M-Ox. | AA |
| R711 | VRD-RA2BE334J | J | 330k | 1/8W | Carbon | AA |
| R712 | VRD-RA2BE100J | J | 10 | 1/8W | Carbon | AA |
| R713 | VRS-RG2HC122J+ | X | 1.2k | 1/2W | M-Ox. | AE |
| R715 | VRD-RA2BE150J | J | 15 | 1/8W | Carbon | AA |
| R716 | VRS-RG3AB121J+ | X | 120 | 1W | M-Ox. | AE |
| R717 | VRD-RA2EE102J | J | 1k | 1/4W | Carbon | AA |
| R721 | VRD-RM2HD104J | J | 100k | 1/2W | Carbon | AA |
| R725 | VRS-RG2HC821J+ | X | 820 | 1/2W | M-Ox. | AE |
| ▲⚠ R733 | VRD-RA2EE394J | J | 390k | 1/4W | Carbon | AA |
| R735 | VRS-CY1JF332J | J | 3.3k | 1/16W | M-Ox. | AA |
| ▲⚠ R736 | VRD-RM2HD184J | J | 180k | 1/2W | Carbon | AA |

# PWB-A: DUNTKA450WEV2

## MAIN UNIT (Continued)

| Ref. No. | Part No. | ★ | | | | Code |
|---|---|---|---|---|---|---|
| R737 | VRN-RL3ABR39J | X | 0.39 | 1W | M-Film | AE |
| | or | | | | | |
| | VRN-RL3DBR39J | X | 0.39 | 2W | M-Film | |
| R739 | VRD-RM2HD332J | J | 3.3k | 1/2W | Carbon | AA |
| R740 | VRD-RM2HD470J | J | 47 | 1/2W | Carbon | AA |
| ▲⚠ R741 | VRN-RA2BK682F | J | 6.8k | 1/8W | M-Film | AA |
| R744 | VRN-RL2HCR68J+ | X | 0.68 | 1/2W | M-Film | AE |
| R752 | VRD-RA2BE562J | J | 5.6k | 1/8W | Carbon | AA |
| ⚠ R758 | VRS-RG2HC100J+ | X | 10 | 1/2W | M-Ox. | AE |
| ⚠ R773 | VRS-RG3LB270J+ | X | 27 | 3W | M-Ox. | AF |
| ⚠ R774 | VRS-RG3LB680J+ | X | 68 | 3W | M-Ox. | AF |
| R801 | VRD-RM2HD470J | J | 47 | 1/2W | Carbon | AA |
| R807 | VRS-CY1JF272J | J | 2.7k | 1/16W | M-Ox. | AA |
| R808 | VRS-CY1JF272J | J | 2.7k | 1/16W | M-Ox. | AA |
| R809 | VRS-CY1JF223J | J | 22k | 1/16W | M-Ox. | AA |
| R810 | VRS-CY1JF223J | J | 22k | 1/16W | M-Ox. | AA |
| R901 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R902 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R925 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R926 | VRS-CY1JF104J | J | 100k | 1/16W | M-Ox. | AA |
| R961 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R962 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R1401 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R1402 | VRS-CY1JF750J | J | 75 | 1/16W | M-Ox. | AA |
| R1403 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R1404 | VRS-CY1JF104J | J | 100k | 1/16W | M-Ox. | AA |
| R1407 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R1410 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R1412 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2001 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R2002 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2006 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2008 | VRS-CY1JF472J | J | 4.7k | 1/16W | M-Ox. | AA |
| R2009 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R2010 | VRS-CY1JF102J | J | 1k | 1/16W | M-Ox. | AA |
| R2012 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2016 | VRD-RA2BE223J | J | 22k | 1/8W | Carbon | AA |
| R2018 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2020 | VRS-CY1JF223J | J | 22k | 1/16W | M-Ox. | AA |
| R2022 | VRD-RA2BE333J | J | 33k | 1/8W | Carbon | AA |
| R2023 | VRD-RA2BE223J | J | 22k | 1/8W | Carbon | AA |
| R2024 | VRD-RA2BE682J | J | 6.8k | 1/8W | Carbon | AA |
| R2025 | VRD-RA2BE682J | J | 6.8k | 1/8W | Carbon | AA |
| R2026 | VRD-RA2BE682J | J | 6.8k | 1/8W | Carbon | AA |
| R2027 | VRD-RA2BE682J | J | 6.8k | 1/8W | Carbon | AA |
| R2028 | VRD-RA2BE102J | J | 1k | 1/8W | Carbon | AA |
| R2029 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2032 | VRD-RA2BE471J | J | 470 | 1/8W | Carbon | AA |
| R2033 | VRS-CY1JF684J | J | 680k | 1/16W | M-Ox. | AA |
| R2034 | VRS-CY1JF684J | J | 680k | 1/16W | M-Ox. | AA |
| R2040 | VRD-RA2BE102J | J | 1k | 1/8W | Carbon | AA |
| R2041 | VRD-RA2BE333J | J | 33k | 1/8W | Carbon | AA |
| R2042 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R2043 | VRD-RA2BE101J | J | 100 | 1/8W | Carbon | AB |
| R2044 | VRS-CY1JF683J | J | 68k | 1/16W | M-Ox. | AA |
| R2045 | VRD-RA2BE101J | J | 100 | 1/8W | Carbon | AB |
| R2047 | VRS-CY1JF221J | J | 220 | 1/16W | M-Ox. | AA |
| R2048 | VRS-CY1JF562J | J | 5.6k | 1/16W | M-Ox. | AA |
| R2049 | VRD-RA2BE333J | J | 33k | 1/8W | Carbon | AA |
| R2060 | VRS-CY1JF221J | J | 220 | 1/16W | M-Ox. | AA |
| R2061 | VRS-CY1JF562J | J | 5.6k | 1/16W | M-Ox. | AA |
| R2062 | VRS-CY1JF183J | J | 18k | 1/16W | M-Ox. | AA |
| R2063 | VRS-CY1JF222J | J | 2.2k | 1/16W | M-Ox. | AA |
| R2064 | VRD-RA2BE391J | J | 390 | 1/8W | Carbon | AA |
| R2065 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2066 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2067 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2068 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2070 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2072 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2101 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R2102 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R2201 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R2202 | VRS-CY1JF473J | J | 47k | 1/16W | M-Ox. | AA |
| R2203 | VRS-CY1JF332J | J | 3.3k | 1/16W | M-Ox. | AA |
| R2211 | VRS-CY1JF222J | J | 2.2k | 1/16W | M-Ox. | AA |
| R2212 | VRS-CY1JF682J | J | 6.8k | 1/16W | M-Ox. | AA |
| R2213 | VRD-RA2BE223J | J | 22k | 1/8W | Carbon | AA |
| R2401 | VRD-RA2BE101J | J | 100 | 1/8W | Carbon | AB |
| R2402 | VRD-RA2BE101J | J | 100 | 1/8W | Carbon | AB |
| R2403 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R2404 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R2501 | VRS-CY1JF123J | J | 12k | 1/16W | M-Ox. | AA |
| R2503 | VRS-CY1JF273J | J | 27k | 1/16W | M-Ox. | AA |
| R2504 | VRS-CY1JF123J | J | 12k | 1/16W | M-Ox. | AA |
| R2505 | VRS-CY1JF563J | J | 56k | 1/16W | M-Ox. | AA |
| R2506 | VRS-CY1JF563J | J | 56k | 1/16W | M-Ox. | AA |
| R2507 | VRS-CY1JF823J | J | 82k | 1/16W | M-Ox. | AA |
| R2508 | VRS-CY1JF153J | J | 15k | 1/16W | M-Ox. | AA |
| R2509 | VRS-CY1JF272J | J | 2.7k | 1/16W | M-Ox. | AA |
| R2601 | VRD-RA2BE100J | J | 10 | 1/8W | Carbon | AA |
| | or | | | | | |
| | VRD-RA2BE331J | J | 330 | 1/8W | Carbon | AA |
| R2602 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2603 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2604 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2605 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2606 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2607 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R2608 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R3001 | VRD-RA2BE221J | J | 220 | 1/8W | Carbon | AA |
| R3002 | VRD-RA2BE221J | J | 220 | 1/8W | Carbon | AA |
| R3003 | VRS-CY1JF105J | J | 1M | 1/16W | M-Ox. | AA |
| R3004 | VRS-CY1JF104J | J | 100k | 1/16W | M-Ox. | AA |
| R3005 | VRS-CY1JF623J | J | 62k | 1/16W | M-Ox. | AA |
| R3007 | VRS-CY1JF332J | J | 3.3k | 1/16W | M-Ox. | AA |
| R3008 | VRS-CY1JF302J | J | 3k | 1/16W | M-Ox. | AA |
| R3010 | VRS-CY1JF392J | J | 3.9k | 1/16W | M-Ox. | AA |
| R3011 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R3012 | VRS-CY1JF101J | J | 100 | 1/16W | M-Ox. | AA |
| R3374 | VRS-CY1JF103J | J | 10k | 1/16W | M-Ox. | AA |
| R3375 | VRS-CY1JF000J | J | 0 | 1/16W | M-Ox. | AA |
| R3377 | VRS-CY1JF822J | J | 8.2k | 1/16W | M-Ox. | AA |
| R3378 | VRS-CY1JF223J | J | 22k | 1/16W | M-Ox. | AA |
| R3379 | VRD-RA2BE683J | J | 68k | 1/8W | Carbon | AA |

### SWITCHES

| | | | | |
|---|---|---|---|---|
| S2501 | QSW-K0202PEZZ | R | POWER | AC |
| | or | | | |
| | QSW-K0079GEZZ | | | |
| S2502 | QSW-K0202PEZZ | R | VOL-Down | AC |
| | or | | | |
| | QSW-K0079GEZZ | | | |
| S2503 | QSW-K0202PEZZ | R | VOL-Up | AC |
| | or | | | |
| | QSW-K0079GEZZ | | | |
| S2504 | QSW-K0202PEZZ | R | CH-Down | AC |
| | or | | | |
| | QSW-K0079GEZZ | | | |
| S2505 | QSW-K0202PEZZ | R | CH-Up | AC |
| | or | | | |
| | QSW-K0079GEZZ | | | |

### MISCELLANEOUS PARTS

| | | | | |
|---|---|---|---|---|
| ⚠ F701 | QFS-B4023CEZZ | J | Fuse 4A/125V | AC |
| | or | | | |
| | QFS-B4021GEZZ | | | |
| FB351 | RBLN-0047CEZZ | J | Ferrite Bead | AB |
| FB601 | RBLN-0047CEZZ | J | Ferrite Bead | AB |
| FB751 | RBLN-0047CEZZ | J | Ferrite Bead | AB |
| FH701 | QFSHD1013CEZZ | J | Fuse Holder | AC |
| FH702 | QFSHD1014CEZZ | J | Fuse Holder | AC |
| P303 | QPLGN0461CEZZ | J | Plug, 4-pin (S) | AB |
| P401 | QPLGN0561CEZZ | J | Plug, 5-pin (GBN) | AB |
| P601 | QPLGN0160FJZZ | J | Plug, 5-pin (K) | AD |
| P651 | QPLGN0361CEZZ | J | Plug, 3-pin (TP651-3) | AB |
| P701 | QPLGN0260CEZZ | J | Plug, 2-pin (M) | AC |

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

# PWB-A: DUNTKA450WEV2
## MAIN UNIT (Continued)

| | | | | |
|---|---|---|---|---|
| P751 | QPLGN0461CEZZ | J | Plug, 4-pin (YBN) | AB |
| P1401 | QPLGN0561CEZZ | J | Plug, 5-pin (HA) | AB |
| P2001 | QPLGN0561CEZZ | J | Plug, 5-pin (TP2001-5) | AB |
| RMC2601 | RRMCU0222CEZZ | J | R/C Receiver | AL |
| | or | | | |
| | RRMCU0227CEZZ | | | |
| | or | | | |
| | RRMCU0235CEZZ | | | |

| ✱1 | | 0222CE | 0227CE | 0235CE |
|---|---|---|---|---|
| COMB NATION | R2608 | USE | —— | USE |
| | R2602 | —— | —— | USE |
| | R2603 | USE | —— | —— |
| | R2604 | —— | —— | USE |
| | R2605 | USE | USE | —— |
| | R2606 | —— | USE | —— |
| | R2607 | —— | USE | —— |
| | R2601 | 10 | 330 | 330 |
| | C2601 | 47u(16V) | 4.7u(50V) | 4.7u(50V) |

| | | | | |
|---|---|---|---|---|
| RDA501 | PRDAR0280PEFW | R | Heat Sink, for IC501 | AF |
| RDA604 | PRDAR0233PEFW | R | Heat Sink, for Q602 | AK |
| RDA701 | PRDAR0265PEFW | R | Heat Sink, for Q701 | AD |
| | TLABN0101GJZZ | X | Label | AE |
| | LX-BZ3049GEFD | J | Screw | AA |
| | LX-BZ3100CEFD | J | Screw | AA |
| | LX-TZ3004CEFD | J | Screw | AA |

# PWB-B: DUNTK9510WEW3
## CRT UNIT

### TRANSISTORS

| | | | | |
|---|---|---|---|---|
| Q851 | VS2SC3198-Y-1 | J | 2SC3198(Y) | AA |
| Q852 | VS2SC3789//2E | J | 2SC3789 | AF |
| | or | | | |
| | VS2SC3619LB1E | | | |
| Q853 | VS2SC3198-Y-1 | J | 2SC3198(Y) | AA |
| Q854 | VS2SC3789//2E | J | 2SC3789 | AF |
| | or | | | |
| | VS2SC3619LB1E | | | |
| Q855 | VS2SC3198-Y-1 | J | 2SC3198(Y) | AA |
| Q856 | VS2SC3789//2E | J | 2SC3789 | AF |
| | or | | | |
| | VS2SC3619LB1E | | | |
| Q881 | VS2SA1266-Y-1 | J | 2SA1266(Y) | AA |

### DIODES

| | | | | |
|---|---|---|---|---|
| D881 | VHD1SS119//-1 | J | Diode | AB |
| D882 | VHD1SS119//-1 | J | Diode | AB |
| D884 | VHD1SS119//-1 | J | Diode | AB |

### COIL

| | | | | |
|---|---|---|---|---|
| L851 | VP-MK820K0000 | J | Peaking 82µH | AB |

### CAPACITORS

*[EL.··· Electrolytic]*

| | | | | | | |
|---|---|---|---|---|---|---|
| C851 | VCCSPA1HL391J | J | 390p | 50V | Ceramic | AA |
| C852 | VCCSPA1HL331J | J | 330p | 50V | Ceramic | AA |
| C853 | VCCSPA1HL391J | J | 390p | 50V | Ceramic | AA |
| C854 | RC-KZ0024CEZZ | J | 0.001 | 2kV | Ceramic | AC |
| | or | | | | | |
| | VCKYPB3DE472Z | J | 0.0047 | 2kV | Ceramic | AC |
| C883 | VCEA0A1HW106M | J | 10 | 50V | EL. | AB |

### RESISTORS

*[M-Ox.··· Metal Oxide]*

| | | | | | | |
|---|---|---|---|---|---|---|
| R851 | VRD-RA2BE470J | J | 47 | 1/8W | Carbon | AA |
| R852 | VRD-RA2BE181J | J | 180 | 1/8W | Carbon | AA |
| R853 | VRD-RA2BE121J | J | 120 | 1/8W | Carbon | AA |
| R855 | VRD-RA2BE471J | J | 470 | 1/8W | Carbon | AA |
| R856 | VRD-RA2BE221J | J | 220 | 1/8W | Carbon | AA |
| ⚠ R857 | VRS-VV3LB123J | J | 12k | 3W | M-Ox. | AB |
| R858 | VRD-RM2HD222J | J | 2.2k | 1/2W | Carbon | AA |
| R859 | VRD-RA2BE470J | J | 47 | 1/8W | Carbon | AA |
| R860 | VRD-RA2BE181J | J | 180 | 1/8W | Carbon | AA |
| R861 | VRD-RA2BE121J | J | 120 | 1/8W | Carbon | AA |
| R863 | VRD-RA2BE471J | J | 470 | 1/8W | Carbon | AA |
| R864 | VRD-RA2BE221J | J | 220 | 1/8W | Carbon | AA |
| ⚠ R865 | VRS-VV3LB123J | J | 12k | 3W | M-Ox. | AB |
| R866 | VRD-RM2HD222J | J | 2.2k | 1/2W | Carbon | AA |
| R867 | VRD-RA2BE470J | J | 47 | 1/8W | Carbon | AA |
| R868 | VRD-RA2BE181J | J | 180 | 1/8W | Carbon | AA |
| R869 | VRD-RA2BE121J | J | 120 | 1/8W | Carbon | AA |
| R871 | VRD-RA2BE471J | J | 470 | 1/8W | Carbon | AA |
| R872 | VRD-RA2BE221J | J | 220 | 1/8W | Carbon | AA |
| ⚠ R873 | VRS-VV3LB123J | J | 12k | 3W | M-Ox. | AB |
| R874 | VRD-RM2HD222J | J | 2.2k | 1/2W | Carbon | AA |
| R881 | VRD-RA2BE102J | J | 1k | 1/8W | Carbon | AA |
| R882 | VRD-RA2BE331J | J | 330 | 1/8W | Carbon | AA |
| R883 | VRD-RA2BE561J | J | 560 | 1/8W | Carbon | AA |
| R884 | VRD-RA2BE152J | J | 1.5k | 1/8W | Carbon | AA |
| R895 | VRD-RA2BE470J | J | 47 | 1/8W | Carbon | AA |

### MISCELLANEOUS PARTS

| | | | | |
|---|---|---|---|---|
| P851 | QPLGN0541CEZZ | J | Plug, 5-pin (GBN) | AB |
| P852 | QPLGN0441CEZZ | J | Plug, 4-pin (YBN) | AB |
| SC851 | QSOCV0937CEZZ | J | CRT Socket | AL |

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

## PWB-H: DUNTK9310WEW7
### FRONT A/V UNIT

#### MISCELLANEOUS PARTS

| | | | | |
|---|---|---|---|---|
| J1001 | QJAKE0053GEZZ | J | Jack, Video-In | AD |
| J1002 | QJAKE0055GEZZ | J | Jack, Audio-In (L) | AD |
| J1003 | QJAKE0059GEZZ | J | Jack, Audio-In (R) | AC |
| P1001 | QPLGN0541CEZZ | J | Plug, 5-pin (HA) | AB |

## MISCELLANEOUS PARTS

| | | | | |
|---|---|---|---|---|
| ⚠ ACC701 | QACCD3064CESA | J | AC Cord | AM |
| | or | | | |
| | QACCD3064CESA | | | |
| | or | | | |
| | QACCD3090CESA | | | |
| | VSP0080PBL4YS | X | Speaker x2, 32 ohm | AH |
| | QCNW-0130MEZZ | X | Connecting Cord | AH |
| | QCNW-0134MEZZ | X | Connecting Cord | AF |
| | QCNW-0166MEZZ | X | Connecting Cord | AE |
| | QCNW-0167MEZZ | J | Connecting Cord | AE |

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

## SUPPLIED ACCESSORIES

| | | | | |
|---|---|---|---|---|
| | RRMCG1324CESA | J | Infrared R/C Unit | AT |
| | TGAN-0001GJZZ | X | Guarantee Card | AB |
| | TiNS-7289GJZZ | X | Operation Manual | AE |

## PACKING PARTS
### *(NOT REPLACEMENT ITEM)*

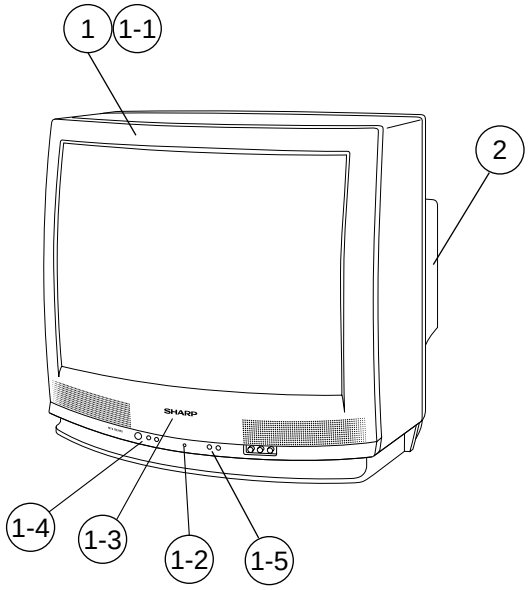
| | | | | |
|---|---|---|---|---|
| | SPAKC0150GJZZ | – | Packing Case | — |
| | SPAKX0165MEZZ | – | Buffer Material | — |
| | SSAKA0101GJZZ | – | Polyethylene Bag | — |
| | SPAKP0109GJZZ | – | Polyethylene Sheet | — |

| Ref. No. | Part No. | ★ | Description | Code |
|---|---|---|---|---|

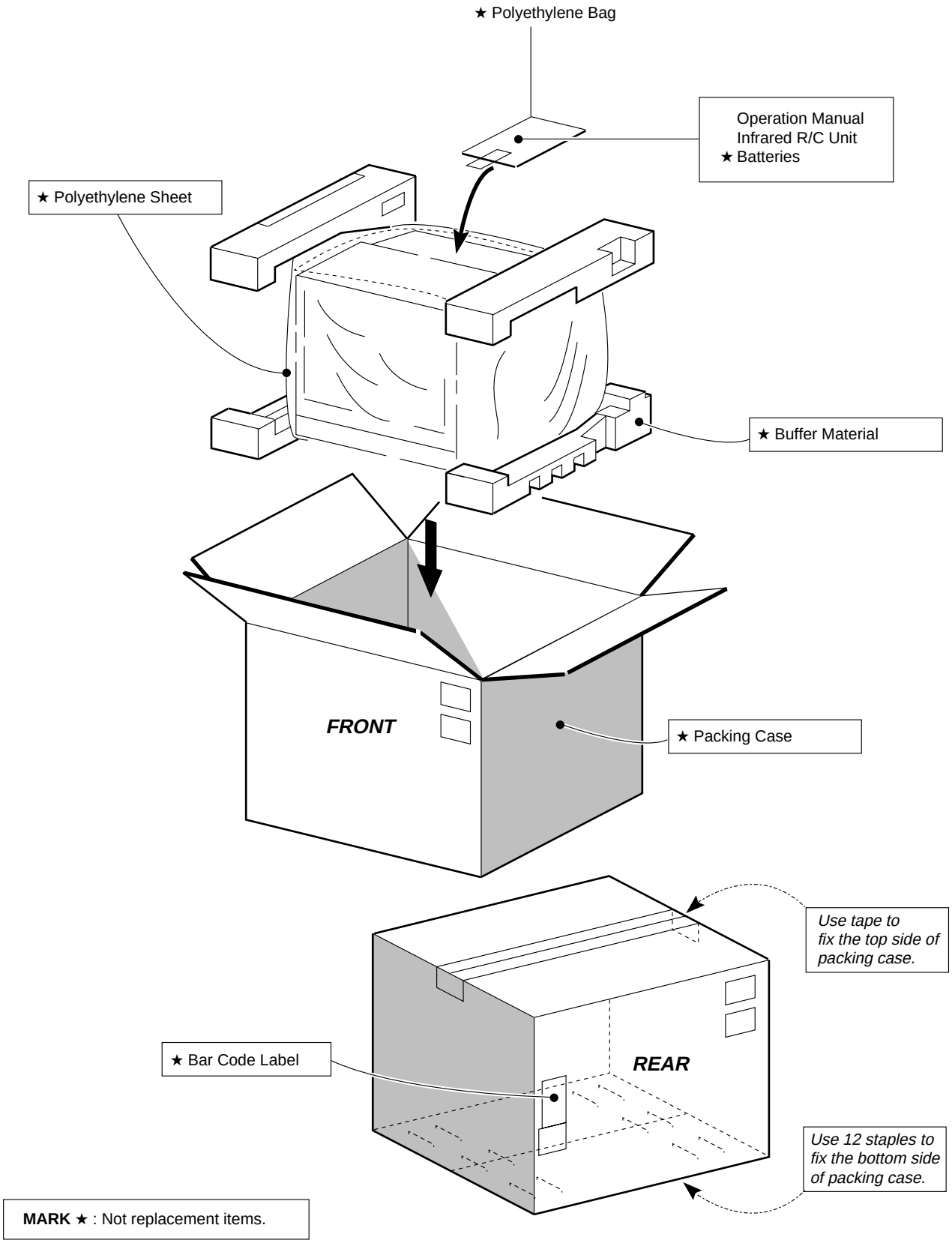
## CABINET PARTS

| | | | | |
|---|---|---|---|---|
| 1 | CCABA0135WEH0 | X | Front Cabinet Ass'y | BC |
| 1-1 | *Not Available* | – | Front Cabinet | — |
| 1-2 | GCOVA1033MEKA | X | Cover for R/C | AG |
| 1-3 | HBDGB1009MESB | X | "SHARP" Badge | AG |
| 1-4 | JBTN-1096MEKA | X | Button, Power, Vol-up/down | AG |
| 1-5 | JBTN-1097MEKA | X | Button, CH-up/down | AG |
| 2 | GCABB0126GJKA | X | Rear Cabinet | AY |

## CABINET PARTS LOCATION



# PACKING OF THE SET




**MARK ★** : Not replacement items.

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